DVP-NS325/NS330/NS333/NS430/NS433/NS530/NS725P/NS730P

RMT-D152A/D156P/D157P/D152E/D153A/D158P

SERVICE MANUAL

Self Diagnosis
Supported model

US Model
DVP-NS325/NS725P
Canadian Model
DVP-NS325/NS725P
PX Model
DVP-NS325/NS725P
E Model
DVP-NS325
Mexico Model
DVP-NS325
Brazilian Model
DVP-NS325

Argentina Model
DVP-NS325
AEP Model
DVP-NS330/NS333/NS430/ NS433
UK Model
DVP-NS330/NS430
Russian Model
DVP-NS330
Hong Kong Model
DVP-NS530/NS730P
Singapore Model
DVP-NS530/NS730P
Taiwan Model
DVP-NS530
Korea Model
DVP-NS530/NS730P
Saudi Arabia Model
DVP-NS530
Middle East Model
DVP-NS530/NS730P
Australian Model
DVP-NS530/NS730P
New Zealand Model
DVP-NS530/NS730P

Photo : DVP-NS325
RMT-D152A

SPECIFICATIONS

System

Laser: Semiconductor laser
Signal format system: NTSC

Audio characteristics

Frequency response: DVD VIDEO (PCM 96 kHz): 2 Hz to 44 kHz (±1.0 dB)/ DVD VIDEO (PCM 48 kHz): 2 Hz to 22 kHz (±0.5 dB)/CD: 2 Hz to 20 kHz (±0.5 dB)
Signal-to-noise ratio (S/N ratio): 115 dB (LINE OUT (L/R) AUDIO jacks only)
Harmonic distortion: 0.003%
Dynamic range: DVD VIDEO: 103 dB/ CD: 99 dB
Wow and flutter: Less than detected value (±0.001% W PEAK)

The signals from LINE OUT L/R (AUDIO) jacks are measured. When you play PCM sound tracks with a 96 kHz sampling frequency, the output signals from the DIGITAL OUT (COAXIAL) jack are converted to 48 kHz sampling frequency.

Outputs/Inputs (NS325)

Jack name: (Jack type/Output or Input level/Load impedance)

Outputs (NS725P/NS530/NS730P/ NS330/NS333/NS430/NS433)

Jack name: (Jack type/Output level/ Load impedance)

LINE OUT (AUDIO): Phono jack/ 2 Vrms/ 10 kilohms
DIGITAL OUT (OPTICAL): Optical output jack/-18d Bm (wave length: 660 nm) (NS725P/NS530/NS730P/ NS430/NS433)
DIGITAL OUT (COAXIAL): Phono jack/ 0.5 Vp-p/75 ohms (NS325/NS725P/ NS530/NS730P/NS330/NS333/ NS430/NS433)
COMPONENT VIDEO OUT (Y, PB, PR): Phono jack/Y: 1.0 Vp-p/PB, PR: 0.65 Vp-p/75 ohms (NS325/NS725P)
COMPONENT VIDEO OUT (Y, PB/CB, PR/CR): Phono jack/Y: 1.0 Vp-p, PB/CB, PR/CR: 0.7 Vp-p/75 ohms (NS730P)
COMPONENT VIDEO OUT (Y, CB/CR): Phono jack/Y: 1.0 Vp-p, CB, CR: 0.7 Vp-p/75 ohms (NS530)
LINE OUT (VIDEO): Phono jack/ 1.0 Vp-p 75 ohms (NS325/NS725P/ NS530/NS730P/NS330/NS333/ NS430/NS433)
S VIDEO OUT: 4-pin mini DIN/Y: 1.0 Vp-p, C: 0.286 Vp-p/75 ohms (NS325/NS725P/NS530/NS730P/ NS330/NS333/NS430/NS433)

General

Power consumption: 13 W/ 14 W
Dimensions (approx.): 430 × 55.5 × 244 mm (17 × 2 3/16 × 9 5/8 in.) (NS325/NS530/NS330/NS333) 430 × 55.5 × 237 mm (17 × 2 3/16 × 9 3/5 in.) (NS430/NS433/NS725P/ NS730P)

Supplied accessories

See page 14 (NS325)
See page 15 (NS725P/NS530/NS730P/ NS330/NS333/NS430/NS433)

Specifications and design are subject to change without notice.

ENERGY STAR® is a U.S. registered mark.
As an ENERGY STAR® Partner, Sony Corporation has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

CD/DVD PLAYER

SONY®

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion.
   Recommend the replacement of any such line cord to the customer.
6. Check the B+ voltage to see it is at the values specified.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

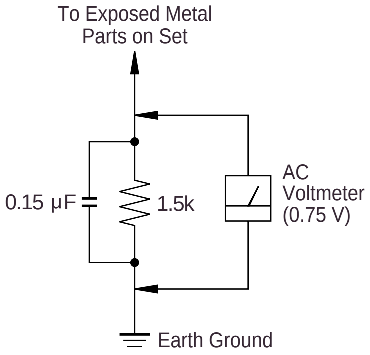


Fig.A. Using an Acvoltmeter to check AC leakage.

WARNING!!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 25 cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

CAUTION:

The use of optical instrument with this product will increase eye hazard.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA TW-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC volmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

: LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C highter than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350°C
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

CLASS 1 LASER PRODUCT
LASER KLASSE 1
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

ÉÈÀÀ

ATTENTION AU COMPOSANT AYANT RAPPORT
À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

TABLE OF CONTENTS

SERVICE NOTE

1. Disc Removal Procedure (at POWER OFF) 5
2. How to Service MB-108 Board 5

1. GENERAL

- Precautions 1-1
- About this Manual 1-1
- This Player Can Play the Following Discs 1-1
- Notes about the Discs 1-1
- Index to Parts and Controls 1-2
- Guide to On-Screen Displays (Control Bar) 1-3

Hookups 1-3
- Hooking Up the Player 1-3
- Step 1: Unpacking 1-3
- Step 2: Inserting Batteries into the Remote 1-3
- Step 3: Connecting the Video Cords 1-3
- Step 4: Connecting the Audio Cords 1-4
- Step 5: Connecting the Power Cords 1-5
- Step 6: Quick Setup 1-5

Playing Discs 1-6
- Playing Discs 1-6
- Resuming Playback from the Point Where You Stopped the Disc (Multi-disc Resume) 1-6
- Using the DVD's Menu 1-6
- Playing VIDEO CD's With PBC Functions (PBC Playback) 1-6
- Playing an MP3 Audio Track 1-7
- Various Play Mode Functions (Program Play, Shuffle Play, Repeat Play, A-B Repeat Play 1-7

Searching for a Scene 1-8
- Searching for a Particular Point on a Disc (Scan, Slow-motion Play, Search, Freeze Frame) 1-8
- Searching for a Title/Chapter/Track/Scene, etc. (Search mode) 1-9

Viewing Information About the Disc 1-9
- Checking the Playing Time and Remaining Time 1-9

Sound Adjustment 1-10
- Changing the Sound 1-10
- TV Virtual Surround Settings (TVS) 1-10

Enjoying Movies 1-10
- Displaying the Subtitles 1-10
- Adjusting the Picture Quality (BNR) 1-10
- Adjusting the Playback Picture (CUSTOM PICTURE MODE) 1-11
- Enhancing the Playback Picture (DIGITAL VIDEO ENHANCER) 1-11
- Changing the Angles 1-11

Using Various Additional Function 1-11
- Locking Discs (CUSTOME PARENTAL CONTROL, PARENTAL CONTROL) 1-11
- Controlling Your TV with the Supplied Remote 1-12

Setting and Adjustmants 1-13
- Using the Setup Display 1-13
- Setting the Display or Sound Track Language (LANGUAGE SETUP) 1-13
- Setting for the Display (SCREEN SETUP) 1-13
- Custom Setting (CUSTOM SETUP) 1-13
- Setting for the Sound (AUDIO SETUP) 1-13

Additional Information 1-14
- Troubleshooting 1-14
- Self-diagnosis Function (When letters/numbers appear in the display 1-14
- Glossary 1-15
- Language Code List 1-15

2. DISASSEMBLY

2-1. Upper Case 2-1
2-2. Front Panel Assembly 2-1
2-3. Loading Assembly 2-2
2-4. Optical Device (KHM-290AAA) 2-2
2-5. DC Motor and MS-128 Board 2-3
2-6. ER-21 Board 2-3
2-7. AF-098 Board 2-4
2-8. MB-108 Board 2-5
2-9. Switching Regulator 2-5
2-10. Interval Views 2-6
2-11. Circuit Boards Location 2-7

3. BLOCK DIAGRAMS

3-1. Overall Block Diagram 3-1
3-2. System Control Block Diagram 3-3
3-3. RF/Servo Block Diagram 3-5
3-4. Signal Processor Block Diagram 3-7
3-5. Audio Block Diagram 3-9
3-6. Video Block Diagram 3-11
3-7. Interface Control Block Diagram 3-13
3-8. Power Block Diagram (1/3) 3-15
3-9. Power Block Diagram (2/3) 3-17
3-10. Power Block Diagram (3/3) 3-19

4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. Frame Schematic Diagram 4-1
4-2. Printed Wiring Boards and Schematic Diagrams 4-3
Waveforms 4-5
- AF-098 Printed Wiring Board 4-7
- AF-098 (Audio Out) Schematic Diagram 4-9
- AF-098 (Video Out) Schematic Diagram 4-11
- AF-098 (PS Trough) Schematic Diagram 4-13
- AF-098 (IF) Schematic Diagram 4-15
- AF-098 Board Differential Part List 4-17
- ER-21 Printed Wiring Board 4-19
- ER-21 (Euro AV) Schematic Diagram 4-21
- MB-108 Printed Wiring Board 4-23
- MB-108 (System Control) Schematic Diagram 4-25
- MB-108 (Motor Drive) Schematic Diagram 4-27
- MB-108 (Servo) Schematic Diagram 4-29
- MB-108 (AV Decoder) Schematic Diagram 4-31
- MB-108 (I/P Converter) Schematic Diagram 4-33
- MB-108 (Audio DAC, PLL) Schematic Diagram 4-35
- MB-108 Board Differential Part List 4-37
- MS-128 Printed Wiring Board 4-39
- MS-128 (Mecha Deck) Schematic Diagram 4-41
- SW-384 Printed Wiring Board 4-43
- SW-384 (Switch) Schematic Diagram 4-45
- Power Block (HS8S2U) Printed Wiring Board 4-47
- Power Block (HS8S2U) Schematic Diagram 4-49
- Power Block (ETXNY410E0F) Printed Wiring Board 4-51
- Power Block (ETXNY410E0F) Schematic Diagram 4-53
- Power Block (ETXNY410M0F) Printed Wiring Board 4-55
- Power Block (ETXNY410M0F) Schematic Diagram 4-57

5. IC PIN FUNCTION DESCRIPTION

5-1. System Control-Video Pin Function (MB-108 BOARD IC104: MB9130RPFV-G-BND-E1) . 5-1

6. TEST MODE

6-1. General Description 6-1
6-2. Starting Test Mode 6-1
6-3. Syscon Diagnosis 6-1
6-4. Drive Auto Adjustment 6-5
6-5. Drive Manual Operation 6-7
6-6. Mecha Aging 6-11
6-7. Emergency History 6-11
6-8. Version Information 6-11
6-9. Video Level Adjustment 6-11
6-10. If Con Self Diagnostic Function 6-12
6-11. Troubleshooting 6-19

7. ELECTRICAL ADJUSTMENT

7-1. Power Supply Check 7-1
7-2. Adjustment of Video System 7-2
  1. Video Level Adjustment (MB-108 Board) 7-2
  2. Checking S Video Output S-Y 7-2
  3. Checking S Video Output S-C 7-2
  4. Checking Component Video Output Y 7-2
  5. Checking Component Video Output B-Y 7-3
  6. Checking Component Video Output R-Y 7-3
7-3. Adjustment Related Parts Arrangement 7-4

8. REPAIR PARTS LIST

8-1. Exploded Views 8-1
  8-1-1. Main Section 8-2
  8-1-2. Mechanism Deck Assembly 8-4
8-2. Electrical Parts List 8-5

SERVICE NOTE

1. DISC REMOVAL PROCEDURE (at POWER OFF)

1) Open dust cover to access to a hole insert a tapering driver into the aperture of the unit bottom, and move the lever of chuck can in the direction of the arrow A. (See Fig. 1)
2) Draw out the tray in the direction of the arrow B, and remove a disc. (See Fig. 1)

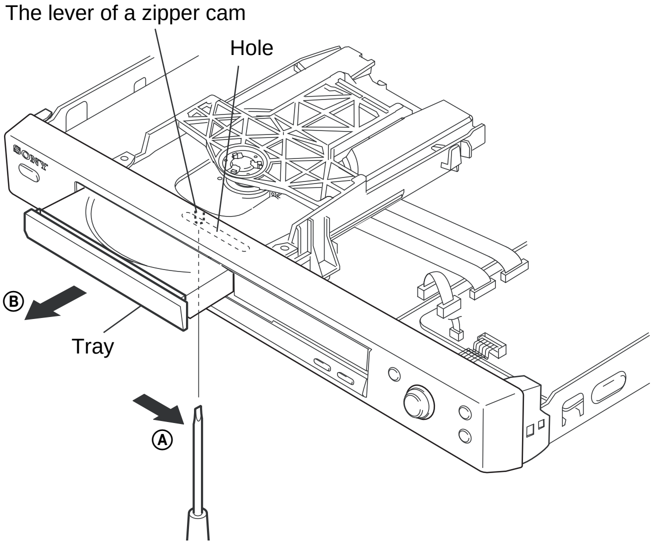
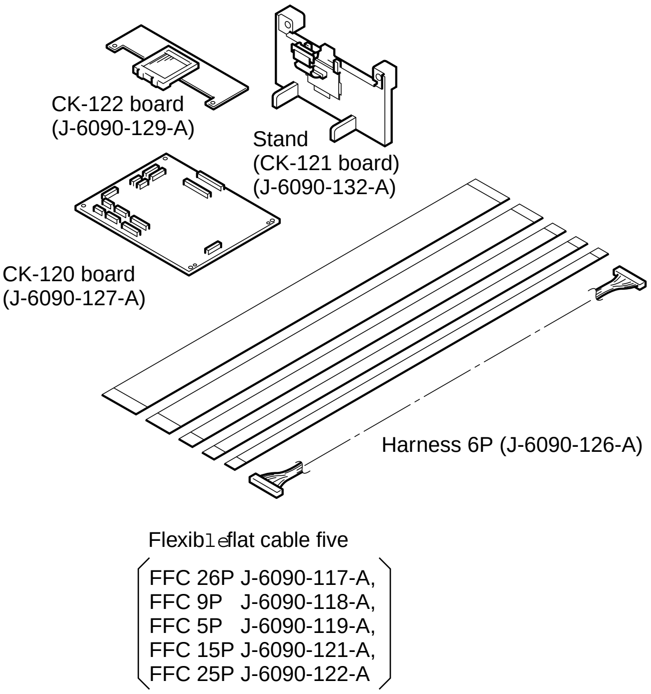

The lever of a zipper cam
Hole
Ⓑ
Tray
Ⓐ

Fig. 1.

2. HOW TO SERVICE MB-108 BOARD

- **Jig**

1) Remove the upper case from the main unit. (Refer to 2-1)
2) Remove the MB-108 board. (Refer to 2-7)
3) Set the removed MB-108 board and CK-122 board to the stand as shown in Fig. 2.


CK-122 board
(J-6090-129-A)
Stand
(CK-121 board)
(J-6090-132-A)
CK-120 board
(J-6090-127-A)
Harness 6P (J-6090-126-A)
Flexible flat cable five
FFC 26P J-6090-117-A,
FFC 9P J-6090-118-A,
FFC 5P J-6090-119-A,
FFC 15P J-6090-121-A,
FFC 25P J-6090-122-A

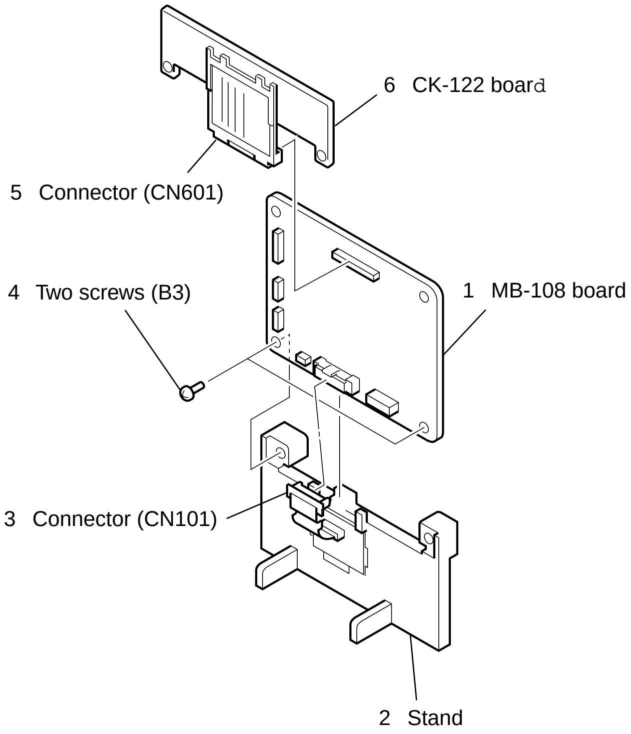

6 CK-122 board
5 Connector (CN601)
4 Two screws (B3)
1 MB-108 board
3 Connector (CN101)
2 Stand

Fig. 2.

4) Fix the CK-120 board to the location where the MB-108 board is removed.

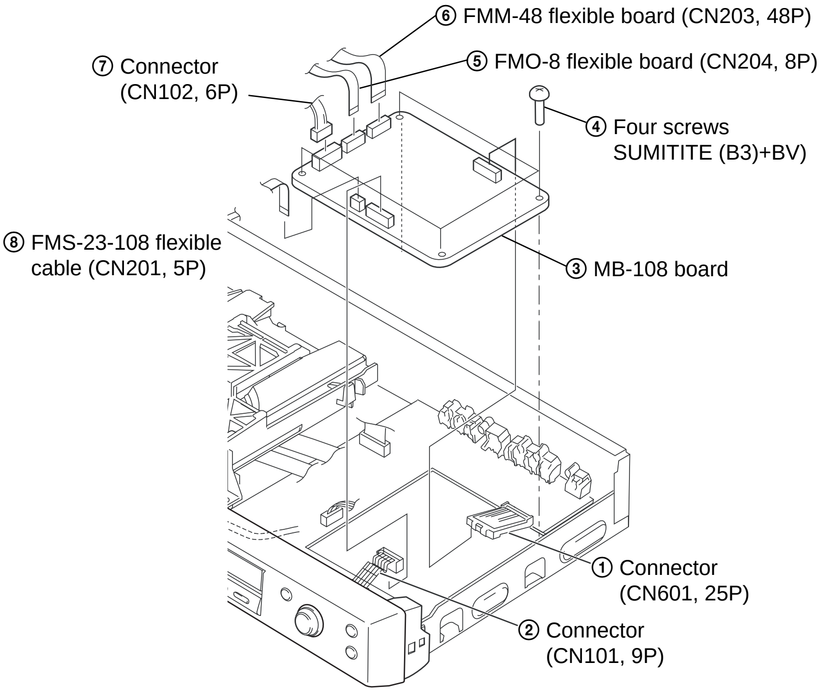

⑥ FMM-48 flexible board (CN203, 48P)
⑤ FMO-8 flexible board (CN204, 8P)
⑦ Connector (CN102, 6P)
④ Four screws SUMITITE (B3)+BV)
⑧ FMS-23-108 flexible cable (CN201, 5P)
③ MB-108 board
① Connector (CN601, 25P)
② Connector (CN101, 9P)

Fig. 3.

5) Set the five flexible flat cables and the harness as shown in Fig. 4 and Fig. 5.

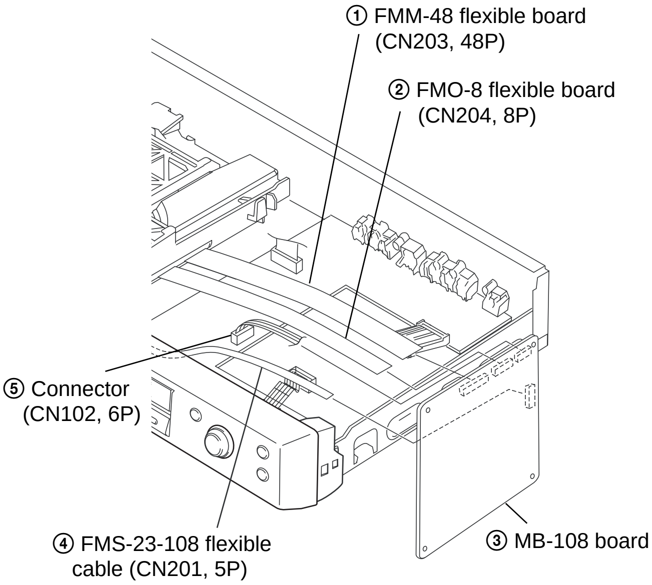

① FMM-48 flexible board (CN203, 48P)
② FMO-8 flexible board (CN204, 8P)
⑤ Connector (CN102, 6P)
④ FMS-23-108 flexible cable (CN201, 5P)
③ MB-108 board

Fig. 4.

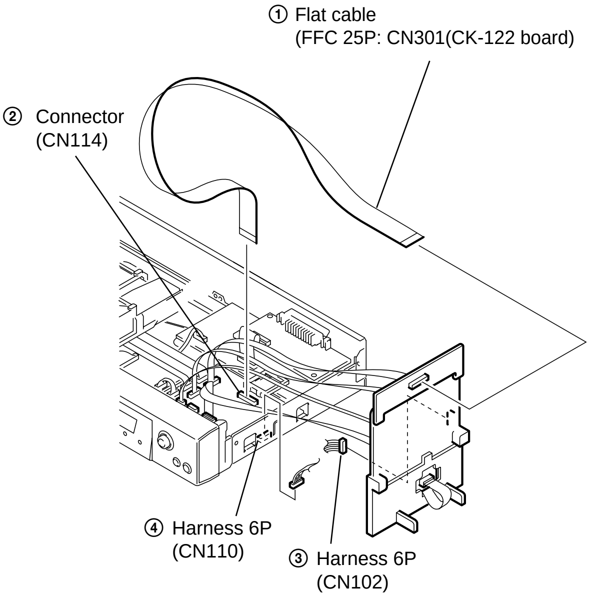

① Flat cable (FFC 25P: CN301(CK-122 board)
② Connector (CN114)
④ Harness 6P (CN110)
③ Harness 6P (CN102)

Fig. 5.

6) Set complete!

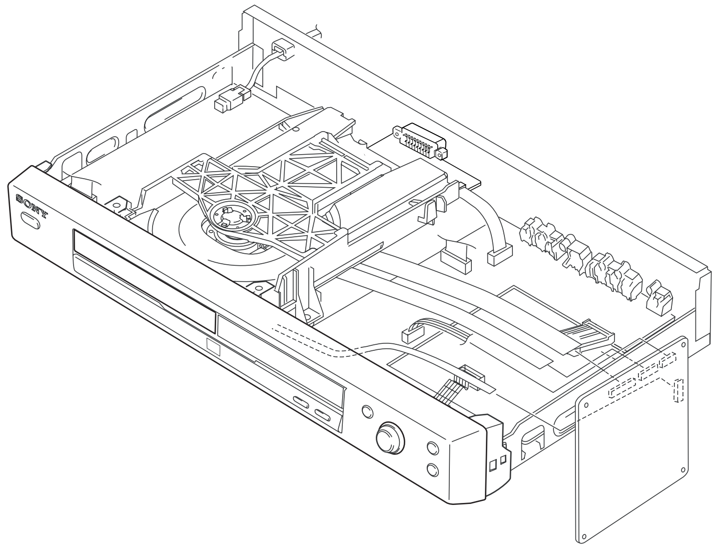


Fig. 6.

MEMO

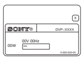
SECTION 1-1
GENERAL
(Except NS725P/NS730P)

This section is extracted from instruction manual

Precautions

- The power requirements and power consumption of this player are indicated on the back of the player. Check that the player's operating voltage is identical with your local power supply.

Power requirements and power consumption →



On safety

- Caution – The use of optical instruments with this product will increase eye hazard.
- To prevent fire or shock hazard, do not place objects filled with liquids, such as vases, on the apparatus.
- Should any solid object or liquid fall into the cabinet, unplug the player and have it checked by qualified personnel before operating it any further.

On power sources

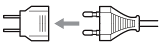
- The player is not disconnected from the AC power source as long as it is connected to the wall outlet, even if the player itself has been turned off.
- If you are not going to use the player for a long time, be sure to disconnect the player from the wall outlet. To disconnect the AC power cord, grasp the plug itself; never pull the cord.
- Should the AC power cord need to be changed, have it done at a qualified service shop only.

On placement

- Place the player in a location with adequate ventilation to prevent heat build-up in the player.
- Do not place the player on a soft surface such as a rug that might block the ventilation holes.
- Do not place the player in a location near heat sources, or in a place subject to direct sunlight, excessive dust, or mechanical shock.

For the model supplied with the AC plug adaptor

If the AC plug of your unit does not fit into the wall autlet, attach the supplied AC plug adaptor.



On operation

- If the player is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lenses inside the player. Should this occur, the player may not operate properly. In this case, remove the disc and leave the player turned on for about half an hour until the moisture evaporates.
- When you move the player, take out any discs. If you don't, the disc may be damaged.

On adjusting volume

Do not turn up the volume while listening to a section with very low level inputs or no audio signals. If you do, the speakers may be damaged when a peak level section is played.

On cleaning

Clean the cabinet, panel, and controls with a soft cloth slightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine.

On cleaning discs

Do not use a commercially available cleaning disc. It may cause a malfunction.

IMPORTANT NOTICE

Caution: This player is capable of holding a still video image or on-screen display image on your television screen indefinitely. If you leave the still video image or on-screen display image displayed on your TV for an extended period of time you risk permanent damage to your television screen. Plasma Display Panel televisions and projection televisions are susceptible to this.

If you have any questions or problems concerning your player, please consult your nearest Sony dealer.

About this Manual

- Instructions in this manual describe the controls on the remote. You can also use the controls on the player if they have the same or similar names as those on the remote.
- The meaning of the icons used in this manual is described below:

Icon	Meaning
DVD	Functions available for DVD VIDEOs and DVD-RWs/DVD-Rs in video mode or DVD+RWs/DVD+Rs
VCD	Functions available for VIDEO CDs, Super VCDs, or CD-Rs/CD-RWs in video CD format or Super VCD format
CD	Functions available for music CDs or CD-Rs/CD-RWs in music CD format
DATA CD	Functions available for DATA CDs (CD-ROMs/CD-Rs/CD-RWs containing MP3* audio tracks)

* MP3 (MPEG 1 Audio Layer 3) is a standard format defined by ISO/MPEG which compresses audio data.

This Player Can Play the Following Discs

Format of discs	
DVD VIDEO	DVD VIDEO
VIDEO CD	COMPACT disc DIGITAL VIDEO
Music CD	COMPACT disc DIGITAL AUDIO

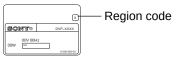
The "DVD VIDEO" is a trademark.

Region code

Your player has a region code printed on the back of the unit and only will play DVD VIDEO discs (playback only) labeled with identical region codes. This system is used to protect copyrights.

DVDs labeled ALL will also play on this player.

If you try to play any other DVD, the message "Playback prohibited by area limitations." will appear on the TV screen. Depending on the DVD, no region code indication may be labeled even though playing the DVD is prohibited by area restrictions.



Example of discs that the player cannot play

The player cannot play the following discs:
- All CD-ROMs (including PHOTO CDs)/CD-Rs/CD-RWs other than those recorded in the following formats:
  - music CD format
  - video CD format
  - MP3 format that conforms to ISO9660* Level 1/Level 2, or its extended format, Joliet
- Data part of CD-Extras
- DVD-RWs in VR mode
- DVD-ROMs
- DVD Audio discs
- HD layer on Super Audio CDs
- Super VCDs in PAL format

* A logical format of files and folders on CD-ROMs, defined by ISO (International Standard Organization).

Also, the player cannot play the following discs:
- A DVD with a different region code.
- A disc recorded in a color system other than NTSC, such as PAL or SECAM (this player conforms to the NTSC color system).
- A disc that has a non-standard shape (e.g., card, heart).
- A disc with paper or stickers on it.
- A disc that has the adhesive of cellophane tape or a sticker still left on it.

Notes

- **Notes about DVD-RWs/DVD-Rs, DVD+RWs/DVD+Rs or CD-Rs/CD-RWs**
  Some DVD-RWs/DVD-Rs, DVD+RWs/DVD+Rs, or CD-Rs/CD-RWs cannot be played on this player due to the recording quality or physical condition of the disc, or the characteristics of the recording device and authoring software.
  The disc will not play if it has not been correctly finalized. For more information, see the operating instructions for the recording device. Note that discs created in the Packet Write format cannot be played.
- **Music discs encoded with copyright protection technologies**
  This product is designed to playback discs that conform to the Compact Disc (CD) standard. Recently, various music discs encoded with copyright protection technologies are marketed by some record companies. Please be aware that among those discs, there are some that do not conform to the CD standard and may not be playable by this product.

Note on playback operations of DVDs and VIDEO CDs

Some playback operations of DVDs and VIDEO CDs may be intentionally set by software producers. Since this player plays DVDs and VIDEO CDs according to the disc contents the software producers designed, some playback features may not be available. Also, refer to the instructions supplied with the DVDs or VIDEO CDs.

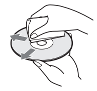
Copyrights

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents, other intellectual property rights owned by Macrovision Corporation, and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Notes about the Discs

- To keep the disc clean, handle the disc by its edge. Do not touch the surface.

- Do not expose the disc to direct sunlight or heat sources such as hot air ducts, or leave it in a car parked in direct sunlight as the temperature may rise considerably inside the car.
- After playing, store the disc in its case.
- Clean the disc with a cleaning cloth. Wipe the disc from the center out.

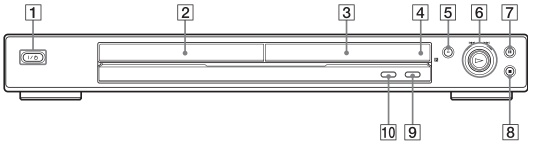


- Do not use solvents such as benzine, thinner, commercially available cleaners, or anti-static spray intended for vinyl LPs.

Index to Parts and Controls

For more information, refer to the pages indicated in parentheses.

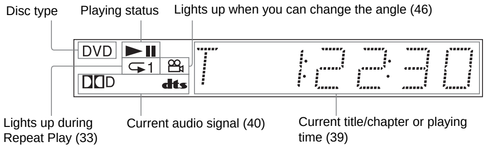
Front panel



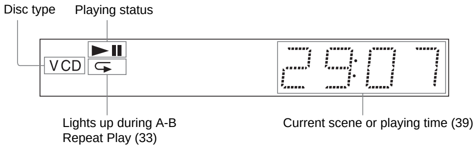
1 I/⏻ (on/standby) button (24)
2 Disc tray (24)
3 Front panel display (9)
4 ▣ (remote sensor) (14)
5 ⏏ (open/close) button (24)
6 Playback Dial (35)
7 ❚❚ (pause) button (25)
8 ■ (stop) button (25)
9 SURROUND button (41)
10 PICTURE MODE button (44)

Front panel display

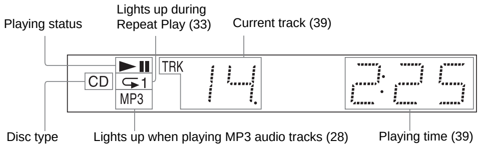
When playing back a DVD


Disc type
Playing status
Lights up when you can change the angle (46)
DVD
1
dts
T 1:22:30
Lights up during Repeat Play (33)
Current audio signal (40)
Current title/chapter or playing time (39)

When playing back a VIDEO CD with Playback Control (PBC) (27)

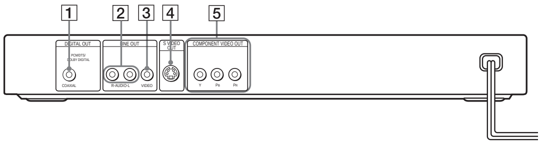

Disc type
Playing status
VCD
29:07
Lights up during A-B Repeat Play (33)
Current scene or playing time (39)

When playing back a CD, DATA CD (MP3 audio), or VIDEO CD (without PBC)


Lights up during Repeat Play (33)
Playing status
Current track (39)
CD
1
MP3
TRK
14.
2:25
Disc type
Lights up when playing MP3 audio tracks (28)
Playing time (39)

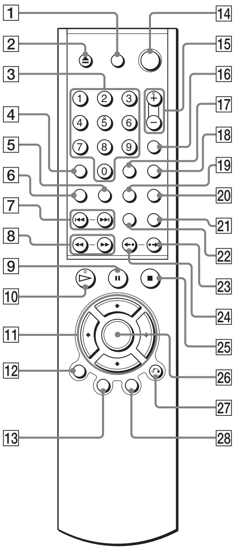
➡continued

Rear panel


1
2
3
4
5
DIGITAL OUT
LINE OUT
S VIDEO OUT
COMPONENT VIDEO OUT
COAXIAL
R AUDIO L
VIDEO
Y
PB
PR

1 DIGITAL OUT (COAXIAL) jack (19) (20) (21)
2 LINE OUT L/R (AUDIO) jacks (18) (19) (20)
3 LINE OUT (VIDEO) jack (15)
4 S VIDEO OUT jack (15)
5 COMPONENT VIDEO OUT jacks (15)

Remote


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

1 TV I/⏻ (on/standby) button (51)
2 ⏏ OPEN/CLOSE button (25)
3 Number buttons (27)
The number 5 button has a tactile dot.*
4 CLEAR button (30)
5 SUBTITLE button (43)
6 AUDIO button (40)
7 ⏮/⏭ PREV/NEXT (previous/next) buttons (25)
8 ◀❚ ◀◀/▶▶ ❚▶ SCAN/SLOW buttons (35)
9 ❚❚ PAUSE button (25)
10 ▷ PLAY button (24)
The ▷ button has a tactile dot.*
11 ←/↑/↓/→ buttons (27)
12 DISPLAY button (12)
13 TOP MENU button (27)
14 I/⏻ (on/standby) button (24)
15 VOL (volume) +/– buttons (51)
The + button has a tactile dot.*
16 TV/VIDEO button (51)
17 TIME/TEXT button (38)
18 PICTURE MODE button (44)
19 ANGLE button (46)
20 SUR (surround) button (41)
21 SEARCH MODE button (36)
22 REPEAT button (33)
23 •→/❚❚▶ INSTANT SEARCH/STEP button (25, 36)
24 ←•/◀❚❚ INSTANT REPLAY/STEP button (25, 36)
25 ■ STOP button (25)
26 ENTER button (22)
27 ↶ RETURN button (27)
28 MENU button (27) (28)

* Use the tactile dot as a reference when operating the player.

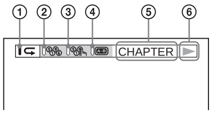
Guide to On-Screen Displays (Control Bar)

The following explains the Control Bar. The Control Bar is used for making adjustments to the settings or displaying information during playback.
The displayed contents differ according to the type of disc being played. The numbers in parentheses indicate reference pages.

Displaying the Control Bar during playback

The following displays appear when the DISPLAY button is pressed repeatedly during playback. You can select the setting that suits the current playback item and view the related information.

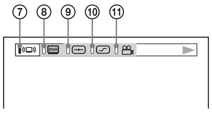
◆Display 1
The following play modes ①~④ can be set. The indicator lights up in blue when activated.
Example: When Repeat Play is selected. (The display will differ when A-B Repeat Play is set.)


①
②
③
④
⑤
⑥
A-B
CHAPTER

① Repeat Play (33)
② Shuffle Play (32)
③ Program Play (30)
④ A-B Repeat Play (33)
⑤ Unit being repeated in this example.
⑥ Playback status (▶Playback, ❚❚Pause, ■Stop, etc.)

⬇

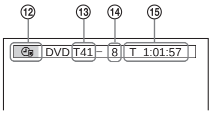
◆Display 2
The following play modes ⑦~⑪ can be set. The indicator lights up in blue when activated.
Example: When "TVS" is set.



⑦ TVS (41)
⑧ "BNR" (43)
⑨ "CUSTOM PICTURE MODE" (44)
⑩ "DIGITAL VIDEO ENHANCER" (45)
⑪ "ANGLE" (46)

⬇

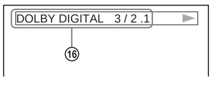
◆Display 3
The following playback information is displayed.
Example: When playing a DVD.


⑫
⑬
⑭
⑮
DVD
T41
8
T 1:01:57

⑫ TIME/TEXT icon
⑬ Title number of the DVD (36)
⑭ Chapter number of the DVD (36)
⑮ Playing time or remaining time (38)

⬇

◆Display 4 (DVD playback only)


DOLBY DIGITAL 3 / 2 .1
⑯

⑯ Format of the current audio signal (40)

⬇

◆No display

⬇

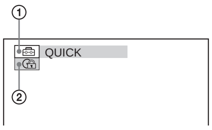
◆Return to Display 1

Displaying the Control Bar in stop mode

The following displays appear when the DISPLAY button is repeatedly pressed during stop mode. You can make basic adjustments and customize the player to suit your viewing preferences.

◆Display 1

The following settings can be made.



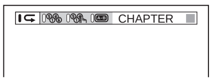
① SETUP (53)
- Select QUICK to make the minimum number of basic adjustments for using the player.
- Select CUSTOM to make a full range of adjustments.
- Select RESET to return the SETUP adjustments to the default settings.

② PARENTAL CONTROL (47)
- Set this to limit the playback of selected discs on this player.

⬇

◆Display 2

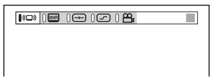
Shows the same information as Display 1 during playback.



⬇

◆Display 3

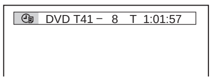
Shows the same information as Display 2 during playback.



⬇

◆Display 4

Shows the same information as Display 3 during playback.


DVD T41 – 8 T 1:01:57

⬇

◆No display

⬇

◆Return to Display 1

Hooking Up the Player

Follow Steps 1 to 6 to hook up and adjust the settings of the player.

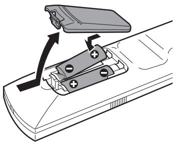
Notes
- Plug cords securely to prevent unwanted noise.
- Refer to the instructions supplied with the components to be connected.
- You cannot connect this player to a TV that does not have a video input jack.
- Be sure to disconnect the power of each component before connecting.

Step 1: Unpacking

Check that you have the following items:
- Audio/video cord (pinplug × 3 ⟷ pinplug × 3) (1)
- Remote commander (remote) (1)
- Size AA (R6) batteries (2)
- A plug adaptor is included with some models.

Step 2: Inserting Batteries into the Remote

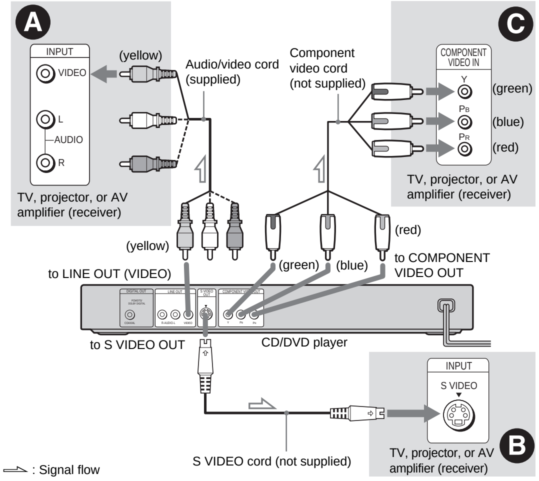
You can control the player using the supplied remote. Insert two Size AA (R6) batteries by matching the ⊕ and ⊖ ends on the batteries to the markings inside the compartment. When using the remote, point it at the remote sensor on the player.



Notes
- Do not leave the remote in an extremely hot or humid place.
- Do not drop any foreign object into the remote casing, particularly when replacing the batteries.
- Do not expose the remote sensor to direct light from the sun or a lighting apparatus. Doing so may cause a malfunction.
- If you do not use the remote for an extended period of time, remove the batteries to avoid possible damage from battery leakage and corrosion.

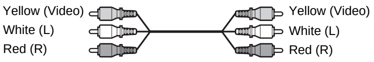
Step 3: Connecting the Video Cords

Connect this player to your TV monitor, projector, or AV amplifier (receiver) using a video cord. Select one of the patterns Ⓐ through Ⓒ, according to the input jack on your TV monitor, projector, or AV amplifier (receiver).


A
INPUT
VIDEO
L
AUDIO
R
TV, projector, or AV amplifier (receiver)
(yellow)
Audio/video cord (supplied)
Component video cord (not supplied)
C
COMPONENT VIDEO IN
Y
PB
PR
(green)
(blue)
(red)
TV, projector, or AV amplifier (receiver)
(yellow)
to LINE OUT (VIDEO)
(green)
(blue)
(red)
to COMPONENT VIDEO OUT
to S VIDEO OUT
CD/DVD player
INPUT
S VIDEO
S VIDEO cord (not supplied)
TV, projector, or AV amplifier (receiver)
B
: Signal flow

Ⓐ If you are connecting to a video input jack

Connect the yellow plug of the audio/video cord (supplied) to the yellow (video) jacks. You will enjoy standard quality images.


Yellow (Video)
White (L)
Red (R)
Yellow (Video)
White (L)
Red (R)

Use the red and white plugs to connect to the audio input jacks (page 18). (Do this if you are connecting to a TV only.)

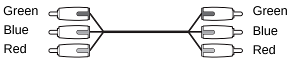
➡continued

Ⓑ If you are connecting to an S VIDEO input jack

Connect the S VIDEO cord (not supplied). You will enjoy high quality images.

Ⓒ If you are connecting to a monitor, projector, or AV amplifier (receiver) having component video input jacks (Y, P_B, P_R)

Connect the component via the COMPONENT VIDEO OUT jacks using a component video cord (not supplied) or three video cords (not supplied) of the same kind and length. You will enjoy accurate color reproduction and high quality images.

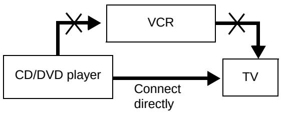

Green
Blue
Red
Green
Blue
Red

When connecting to a wide screen TV

Depending on the disc, the image may not fit your TV screen. If you want to change the aspect ratio, please refer to page 55.

Note

Connect the player directly to the TV. If you pass the player signals via the VCR, you may not receive a clear image on the TV screen.

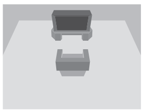
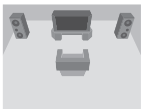
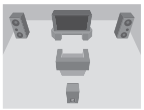
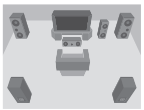

VCR
CD/DVD player
TV
Connect directly

Step 4: Connecting the Audio Cords

Refer to the chart below to select the connection that best suits your system. Be sure to also read the instructions for the components you wish to connect.

Select a connection

Select one of the following connections, A through D.

Components to be connected	Connection	Your setup (example)
TV • Surround effects: TVS DYNAMIC (page 41), TVS WIDE (page 41)	A (page 18)	
Stereo amplifier (receiver) **and two speakers** • Surround effects: TVS STANDARD (page 41) or **MD deck/DAT deck** • Surround effects: TVS STANDARD (page 41).	B (page 19)	
AV amplifier (receiver) having a Dolby* Surround (Pro Logic) decoder and 3 to 6 speakers • Surround effects: Dolby Surround (Pro Logic) (page 62)	C (page 20)	
AV amplifier (receiver) with digital input jacks having a Dolby Digital or DTS decoder and 6 speakers** • Surround effects: – Dolby Digital (5.1ch) (page 62) – DTS (5.1ch) (page 62)	D (page 21)	

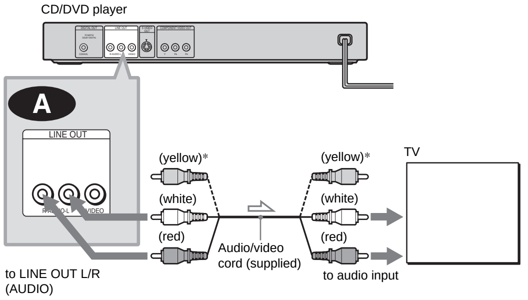
* Manufactured under license from Dolby Laboratories. "Dolby," "Pro Logic," and the double-D symbol are trademarks of Dolby Laboratories.

** "DTS" and "DTS Digital Out" are trademarks of Digital Theater Systems, Inc.

➡continued

A Connecting to your TV

This connection will use your TV speakers for sound.


CD/DVD player
A
LINE OUT
R-AUDIO-L
VIDEO
(yellow)*
(white)
(red)
Audio/video cord (supplied)
(yellow)*
(white)
(red)
TV
to audio input
to LINE OUT L/R (AUDIO)

⇒ : Signal flow

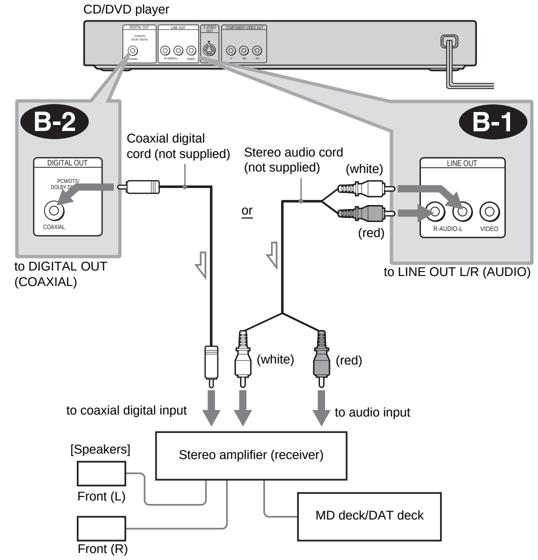
* The yellow plug is used for video signals (page 15).

Hint

When connecting to a monaural TV, use a stereo-mono conversion cord (not supplied). Connect the LINE OUT L/R (AUDIO) jacks to the TV's audio input jack.

B Connecting to a stereo amplifier (receiver) and 2 speakers/Connecting to an MD deck or DAT deck

If the stereo amplifier (receiver) has audio input jacks L and R only, use B-1. If the amplifier (receiver) has a digital input jack, or when connecting to an MD deck or DAT deck, use B-2. In this case, you can also connect the player directly to the MD deck or DAT deck without using your stereo amplifier (receiver).

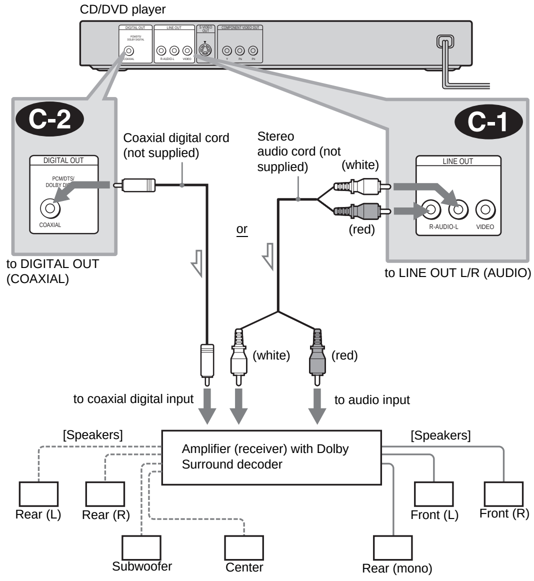

CD/DVD player
B-2
B-1
DIGITAL OUT
PCM/DTS/DOLBY DIGITAL
COAXIAL
Coaxial digital cord (not supplied)
Stereo audio cord (not supplied)
(white)
(red)
or
LINE OUT
R-AUDIO-L
VIDEO
to DIGITAL OUT (COAXIAL)
to LINE OUT L/R (AUDIO)
(white)
(red)
to coaxial digital input
to audio input
[Speakers]
Stereo amplifier (receiver)
Front (L)
Front (R)
MD deck/DAT deck

⇒: Signal flow

➡continued

C Connecting to an AV amplifier (receiver) having a Dolby Surround (Pro Logic) decoder and 3 to 6 speakers

You can enjoy the Dolby Surround effects only when playing Dolby Surround audio or multi-channel audio (Dolby Digital) discs.
If your amplifier (receiver) has L and R audio input jacks only, use C-1. If your amplifier (receiver) has a digital input jack, use C-2.


CD/DVD player
C-2
C-1
DIGITAL OUT
PCM/DTS/DOLBY DIGITAL
COAXIAL
Coaxial digital cord (not supplied)
Stereo audio cord (not supplied)
(white)
(red)
or
LINE OUT
R-AUDIO-L
VIDEO
to DIGITAL OUT (COAXIAL)
to LINE OUT L/R (AUDIO)
(white)
(red)
to coaxial digital input
to audio input
[Speakers]
Amplifier (receiver) with Dolby Surround decoder
[Speakers]
Rear (L)
Rear (R)
Front (L)
Front (R)
Subwoofer
Center
Rear (mono)

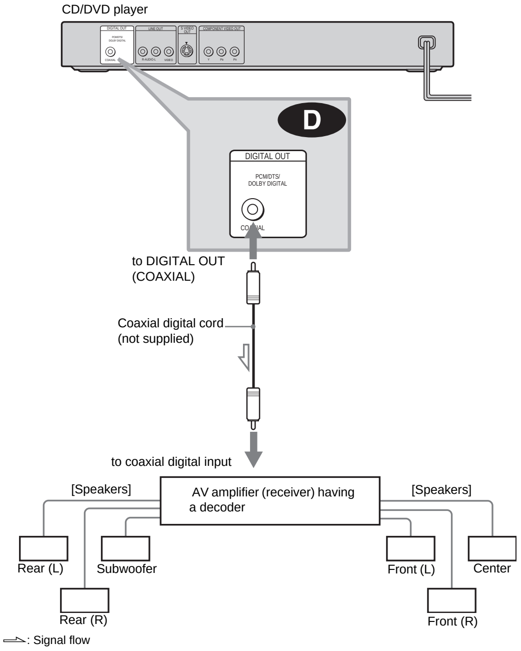
⇒: Signal flow

Note

When connecting 6 speakers, replace the monaural rear speaker with a center speaker, 2 rear speakers and a subwoofer.

D Connecting to an AV amplifier (receiver) with a digital input jack having a Dolby Digital or DTS decoder and 6 speakers

This connection will allow you to use the Dolby Digital or DTS decoder function of your AV amplifier (receiver).



Note

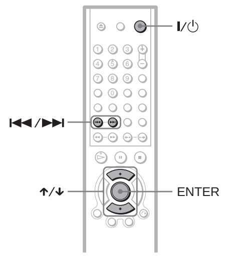
After you have completed the connection, be sure to set "DOLBY DIGITAL" to "DOLBY DIGITAL" and "DTS" to "ON" (page 22) in Quick Setup.

Step 5: Connecting the Power Cord

Plug the player and TV power cords into an AC outlet.

Step 6: Quick Setup

Follow the steps below to make the minimum number of basic adjustments for using the player. To skip an adjustment, press ⏭. To return to the previous adjustment, press ⏮.



1 Turn on the TV.

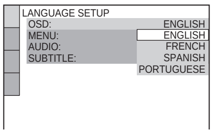
2 Press I/⏻.

3 Switch the input selector on your TV so that the signal from the player appears on the TV screen.

"Press [ENTER] to run QUICK SETUP" appears at the bottom of the screen. If this message does not appear, select "QUICK" under "SETUP" in the Control Bar to run Quick Setup (page 54).

4 Press ENTER without inserting a disc.

The Setup Display for selecting the language used in the on-screen display appears.



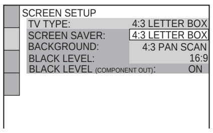
LANGUAGE SETUP
OSD: ENGLISH
MENU: ENGLISH
AUDIO: FRENCH
SUBTITLE: SPANISH
PORTUGUESE

5 Press ↑/↓ to select a language.

The player uses the language selected here to display the menu and subtitles as well.

6 Press ENTER.

The Setup Display for selecting the aspect ratio of the TV to be connected appears.



SCREEN SETUP
TV TYPE: 4:3 LETTER BOX
SCREEN SAVER: 4:3 LETTER BOX
BACKGROUND: 4:3 PAN SCAN
BLACK LEVEL: 16:9
BLACK LEVEL (COMPONENT OUT): ON

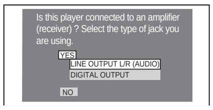
7 Press ↑/↓ to select the setting that matches your TV type.

◆ If you have a 4:3 standard TV
- 4:3 LETTER BOX or 4:3 PAN SCAN (page 55)

◆ If you have a wide-screen TV or a 4:3 standard TV with a wide-screen mode
- 16:9 (page 55)

8 Press ENTER.

The Setup Display for selecting the type of jack used to connect your amplifier (receiver) appears.



Is this player connected to an amplifier (receiver) ? Select the type of jack you are using.
YES
LINE OUTPUT L/R (AUDIO)
DIGITAL OUTPUT
NO

9 Press ↑/↓ to select the type of jack (if any) you are using to connect to an amplifier (receiver), then press ENTER.

Choose the item that matches the audio connection you selected on pages 18 to 21 (A through D).

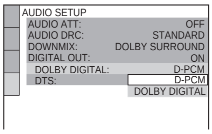
A
- If you connect just a TV and nothing else, select "NO." Quick Setup is finished and connections are complete.

B-1 C-1
- Select "LINE OUTPUT L/R (AUDIO)." Quick Setup is finished and connections are complete.

B-2 C-2 D
- Select "DIGITAL OUTPUT." The Setup Display for "DOLBY DIGITAL" appears.

10 Press ↑/↓ to select the type of Dolby Digital signal you wish to send to your amplifier (receiver).

Choose the signal that matches the audio connection you selected on pages 19 to 21 (B through D).



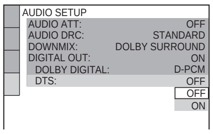
AUDIO SETUP
AUDIO ATT: OFF
AUDIO DRC: STANDARD
DOWNMIX: DOLBY SURROUND
DIGITAL OUT: ON
DOLBY DIGITAL: D-PCM
DTS: D-PCM
DOLBY DIGITAL

B-2 C-2
- D-PCM (page 58)

D
- DOLBY DIGITAL (only if the amplifier (receiver) has a Dolby Digital decoder) (page 58)

11 Press ENTER.

"DTS" is selected.



AUDIO SETUP
AUDIO ATT: OFF
AUDIO DRC: STANDARD
DOWNMIX: DOLBY SURROUND
DIGITAL OUT: ON
DOLBY DIGITAL: D-PCM
DTS: OFF
OFF
ON

12 Press ↑/↓ to select whether or not you wish to send a DTS signal to your amplifier (receiver).

Choose the item that matches the audio connection you selected on pages 19 to 21 (B through D).

B-2 C-2
- OFF (page 58)

D
- ON (only if the amplifier (receiver) has a DTS decoder) (page 58)

13 Press ENTER.

Quick Setup is finished. All connections and setup operations are complete.

Enjoying the surround sound effects

To enjoy the surround sound effects of this player or your amplifier (receiver), set the following items as described below for the audio connection you selected on pages 19 to 21 (B through D). Each of these is the default setting and does not need to be adjusted when you first connect the player. Refer to page 53 for using the Setup Display.

Audio Connection (pages 18 to 21)

A
- No additional settings are needed.

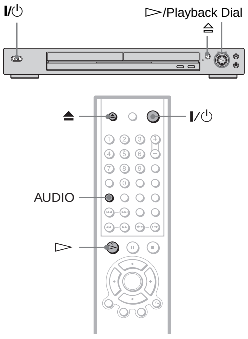
B-1 C-1
- Set "DOWNMIX" to "DOLBY SURROUND" (page 58)
- If the sound distorts even when the volume is turned down, set "AUDIO ATT" to "ON" (page 57)

B-2 C-2 D
- Set "DOWNMIX" to "DOLBY SURROUND" (page 58)
- Set "DIGITAL OUT" to "ON" (page 58)

Playing Discs

Playing Discs DVD VCD CD DATA CD

Depending on the DVD or VIDEO CD, some operations may be different or restricted. Refer to the operating instructions supplied with your disc.



1 Turn on your TV.

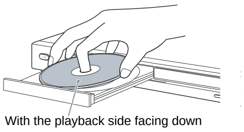
2 Press I/⏻.

The player turns on.

3 Switch the input selector on your TV so that the signal from the player appears on the TV screen.

◆ When using an amplifier (receiver)
Turn on the amplifier (receiver) and select the appropriate channel so that you can hear sound from the player.

4 Press ⏏ on the player, and place a disc on the disc tray.



With the playback side facing down

5 Press ▷.

The disc tray closes, and the player starts playback (continuous play). Adjust the volume on the TV or the amplifier (receiver).
Depending on the disc, a menu may appear on the TV screen. For DVDs, see page 27. For VIDEO CDs, see page 27.

To turn off the player
Press I/⏻. The player enters standby mode.

Hint

You can have the player turn off automatically whenever you leave it in stop mode for more than 30 minutes. To turn on this function, set "AUTO POWER OFF" in "CUSTOM SETUP" to "ON" (page 56).

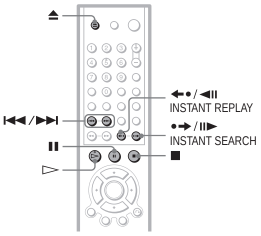
Notes on playing DTS sound tracks on a CD

- When playing DTS-encoded CDs, excessive noise will be heard from the analog stereo jacks. To avoid possible damage to the audio system, the consumer should take proper precautions when the analog stereo jacks of the player are connected to an amplification system. To enjoy DTS Digital Surround™ playback, an external 5.1-channel decoder system must be connected to the digital jack of the player.
- Set the sound to "STEREO" using the AUDIO button when you play DTS sound tracks on a CD (page 40).
- Do not play DTS sound tracks without first connecting the player to an audio component having a built-in DTS decoder. The player outputs the DTS signal via the DIGITAL OUT (COAXIAL) jack even if "DTS" in "AUDIO SETUP" is set to "OFF" in the Setup Display (page 58), and may affect your ears or cause your speakers to be damaged.

Notes on playing DVDs with a DTS sound track

- DTS audio signals are output only through the DIGITAL OUT (COAXIAL) jack.
- When you play a DVD with DTS sound tracks, set “DTS” to “ON” in “AUDIO SETUP” (page 58).
- If you connect the player to audio equipment without a DTS decoder, do not set “DTS” to “ON” in “AUDIO SETUP” (page 58). A loud noise may come out from the speakers, affecting your ears or causing the speakers to be damaged.

Additional operations



To	Operation
Stop	Press ■
Pause	Press ❚❚
Resume play after pause	Press ❚❚ or ▷
Go to the next chapter, track, or scene in continuous play mode	Press ⏭ on the remote, or briefly turn the Playback Dial* on the player clockwise
Go back to the previous chapter, track, or scene in continuous play mode	Press ⏮ on the remote, or briefly turn the Playback Dial* on the player counterclockwise
Stop play and remove the disc	Press ⏏
Replay the previous scene**	Press ←•/◀II INSTANT REPLAY during playback
Briefly fast forward the current scene***	Press •→/II▶ INSTANT SEARCH during playback

* For more details about the Playback Dial, see page 35.

** For DVD VIDEOs and DVD-RWs/DVD-Rs only

*** For DVD VIDEOs and DVD-RWs/DVD-Rs or DVD+RWs only

Hints

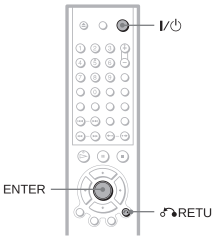
- The Instant Replay function is useful when you want to review a scene or dialog that you missed.
- The Instant Search function is useful when you want to pass over a scene that you don’t want to watch.

Note

You may not be able to use the Instant Replay or Instant Search function with some scenes.

Locking the disc tray (Child Lock)

You can lock the disc tray to prevent children from opening it.



When the player is in standby mode, press ↩ RETURN, ENTER, and then I/⏻ on the remote.

The player turns on and “LOCKED” appears on the front panel display.
The ⏏ button on the player or the remote does not work while the Child Lock is set.

To unlock the disc tray

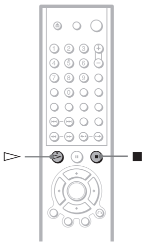
When the player is in standby mode, press ↩ RETURN, ENTER, and then I/⏻ again.

Note

Even if you select “RESET” under “SETUP” in the Control Bar (page 54), the disc tray remains locked.

Resuming Playback from the Point Where You Stopped the Disc (Multi-disc Resume) DVD VCD

The player stores the point where you stopped the disc for up to 6 discs and resumes playback the next time you insert the same disc. When you store a resume playback point for the seventh disc, the resume playback point for the first disc is deleted.



1 While playing a disc, press ■ to stop playback.

“RESUME” appears on the front panel display.

2 Press ▷.

The player starts playback from the point where you stopped the disc in Step 1.

Hints

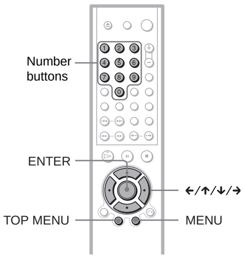
- To play from the beginning of the disc, press ■ twice, then press ▷.
- For CDs, and DATA CDs, the player remembers the resume playback point for the current disc unless the disc tray is opened, the power cord is disconnected, or only for DATA CDs, the player enters standby mode.

Notes

- “MULTI-DISC RESUME” in “CUSTOM SETUP” must be set to “ON” (default) for this function to work (page 57).
- The resume playback point for the current disc is cleared when:
  - – you change the play mode.
  - – you change the settings on the Setup Display.
- This function may not work with some discs.
- Resume Play does not work during Shuffle Play and Program Play.
- If “MULTI-DISC RESUME” in “CUSTOM SETUP” is set to “ON” and you playback a recorded disc such as DVD-RW, the player may playback other recorded discs from the same resume point. To play from the beginning, press ■ twice and then press ▷.

Using the DVD’s Menu DVD

A DVD is divided into long sections of a picture or a music feature called “titles.” When you play a DVD which contains several titles, you can select the title you want using the TOP MENU button.
When you play DVDs that allow you to select items such as the language for the subtitles and the language for the sound, select these items using the MENU button.



1 Press TOP MENU or MENU.

The disc’s menu appears on the TV screen.
The contents of the menu vary from disc to disc.

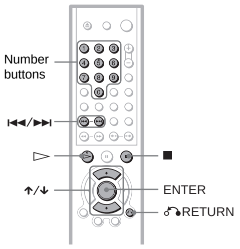
2 Press ←/↑/↓/→ or the number buttons to select the item you want to play or change.

If you press the number buttons, the following display appears.
Press the number buttons to select the item you want.

3 Press ENTER.

Playing VIDEO CDs With PBC Functions (PBC Playback) VCD

PBC (Playback Control) allows you to play VIDEO CDs interactively by following the menu on the TV screen.



1 Start playing a VIDEO CD with PBC functions.

The menu for your selection appears.

2 Select the item number you want by pressing ↑/↓ or the number buttons.

3 Press ENTER.

4 Follow the instructions in the menu for interactive operations.

Refer to the instructions supplied with the disc, as the operating procedure may differ depending on the VIDEO CD.

To return to the menu

Press ↩ RETURN.

➜continued

Hint

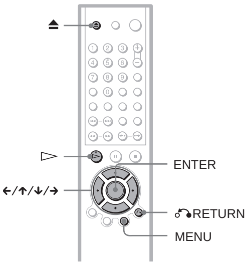
To play without using PBC, press ⏮/⏭ or the number buttons while the player is stopped to select a track, then press ▷ or ENTER.
“Play without PBC” appears on the TV screen and the player starts continuous play. You cannot play still pictures such as a menu.
To return to PBC playback, press ■ twice then press ▷.

Notes

- Depending on the VIDEO CD, “Press ENTER” in step 3 may appear as “Press SELECT” in the instructions supplied with the disc. In this case, press ▷.
- The PBC functions of Super VCDs do not work with this player. Super VCDs are played in continuous play mode only.

Playing an MP3 Audio Track DATA CD

You can play back DATA CDs (CD-ROMs/ CD-Rs/CD-RWs) recorded in MP3 (MPEG1 Audio Layer 3) format.



1 Press ⏏ and place a DATA CD on the disc tray.

2 Press ▷.

The disc tray closes, and the player starts to play the first MP3 audio track in the first album on the disc.

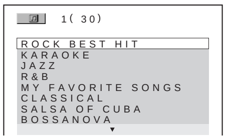
Notes

- This player can play MP3 audio tracks recorded in the following sampling frequencies: 32kHz, 44.1kHz, 48kHz.
- The playback order may be different from the edited order. See “The Playback order of MP3 audio tracks” on the next page for details.

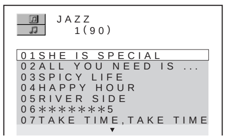
Selecting an album and track

1 Press MENU.

The list of MP3 albums recorded on the DATA CD appears.


1(30)
ROCK BEST HIT
KARAOKE
JAZZ
R&B
MY FAVORITE SONGS
CLASSICAL
SALSA OF CUBA
BOSSANOVA

2 Select an album using ↑/↓ and press ENTER.
The list of tracks contained in the album appears.


JAZZ
1(90)
01SHE IS SPECIAL
02ALL YOU NEED IS ...
03SPICY LIFE
04HAPPY HOUR
05RIVER SIDE
06*******5
07TAKE TIME,TAKE TIME

3 Select a track using ↑/↓ and press ENTER.
The selected track starts playing.
When a track or album is being played, its title is shaded.

To go to the next or previous page
Press → or ←.

To return to the previous display
Press ↶ RETURN.

To turn off the display
Press MENU.

Notes

- Only the letters in the alphabet and numbers can be used for album or track names. Anything else is displayed as an " * ".
- ID3 tags cannot be displayed.

About MP3 audio tracks

You can play MP3 audio tracks on CD-ROMs or CD-Rs/CD-RWs. However, the discs must be recorded according to ISO9660 level 1, level 2, or Joliet format for the player to recognize the tracks.
You can also play discs recorded in Multi Session.

See the instructions of the CD-R/CD-RW device or recording software (not supplied) for details on the recording format.

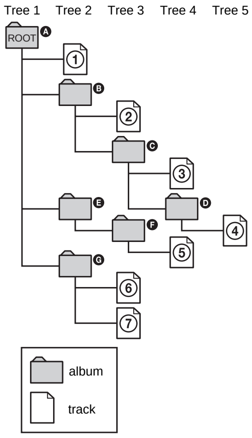
To play a Multi Session CD
This player can play Multi Session CDs when an MP3 audio track is located in the first session. Any subsequent MP3 audio tracks, recorded in the later sessions, can also be played back.
When audio tracks and images in music CD format or video CD format are recorded in the first session, only the first session will be played back.

Notes

- If you put the extension ".MP3" to data not in MP3 format, the player cannot recognize the data properly and will generate a loud noise which could damage your speaker system.
- The player cannot play audio tracks in MP3PRO format.

The Playback order of MP3 audio tracks
The playback order of albums and tracks recorded on a DATA CD is as follows.

◆Structure of disc contents


Tree 1
Tree 2
Tree 3
Tree 4
Tree 5
ROOT
A
B
C
D
E
F
G
①
②
③
④
⑤
⑥
⑦
album
track

➡continued

When you insert a DATA CD and press ▷, the numbered tracks are played sequentially, from ① through ⑦. Any sub-albums/tracks contained within a currently selected album take priority over the next album in the same tree. (Example: Ⓒ contains Ⓓ so ④ is played before ⑤.)
When you press MENU and the list of MP3 albums appears (page 28), the albums are arranged in the following order: Ⓐ → Ⓑ → Ⓒ → Ⓓ → Ⓕ → Ⓖ. Albums that do not contain tracks (such as album Ⓔ) do not appear in the list.

Hints

- If you add numbers (01, 02, 03, etc.) to the front of the track file names, the tracks will be played in that order.
- Since a disc with many trees takes longer to start playback, it is recommended that you create albums of no more than two trees.

Notes

- Depending on the software you use to create the DATA CD, the playback order may differ from the illustration above.
- The playback order above may not be applicable if there are more than a total of 200 albums and tracks in the DATA CD.
- The player can recognize up to 100 albums (the player will count just albums, including albums that do not contain MP3 audio tracks). The player will not play any albums beyond the first 100 albums. Of the first 100 albums, the player will play no more than a combined total of 200 albums and tracks.

Various Play Mode Functions (Program Play, Shuffle Play, Repeat Play, A-B Repeat Play)

You can set the following play modes:

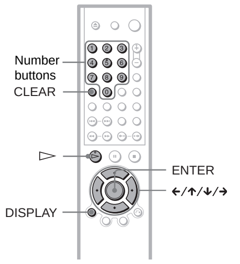
- Program Play (page 30)
- Shuffle Play (page 32)
- Repeat Play (page 33)
- A-B Repeat Play (page 33)

Note

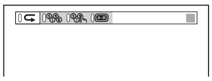
The play mode is canceled when:
– you open the disc tray.
– the player enters standby mode by pressing I/⏻.

Creating your own program (Program Play) DVD VCD CD

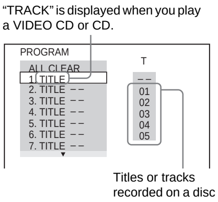
You can play the contents of a disc in the order you want by arranging the order of the titles, chapters, or tracks on the disc to create your own program. You can program up to 99 titles, chapters, and tracks.


Number buttons
CLEAR
▷
ENTER
←/↑/↓/→
DISPLAY

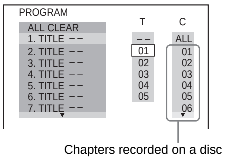
1 Press DISPLAY twice while the player is in stop mode.
The following Control Bar appears.



2 Press ←/→ to select (PROGRAM), then press ENTER.

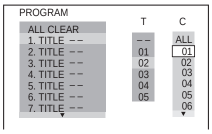

"TRACK" is displayed when you play a VIDEO CD or CD.
PROGRAM
T
ALL CLEAR
1. TITLE
2. TITLE – –
3. TITLE – –
4. TITLE – –
5. TITLE – –
6. TITLE – –
7. TITLE – –
– –
01
02
03
04
05
Titles or tracks recorded on a disc

3 Press →.
The cursor moves to the title or track row "T" (in this case, "01").

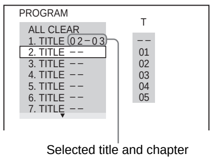

PROGRAM
T
C
ALL CLEAR
1. TITLE – –
2. TITLE – –
3. TITLE – –
4. TITLE – –
5. TITLE – –
6. TITLE – –
7. TITLE – –
– –
01
02
03
04
05
ALL
01
02
03
04
05
06
Chapters recorded on a disc

4 Select the title, chapter, or track you want to program.

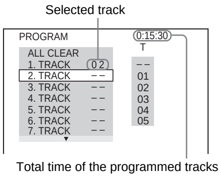
◆ When playing a DVD
For example, select chapter "03" of title "02."
Press ↑/↓ or the number buttons to select "02" under "T," then press ENTER.


PROGRAM
T
C
ALL CLEAR
1. TITLE – –
2. TITLE – –
3. TITLE – –
4. TITLE – –
5. TITLE – –
6. TITLE – –
7. TITLE – –
– –
01
02
03
04
05
ALL
01
02
03
04
05
06

Next, press ↑/↓ or the number buttons to select "03" under "C," then press ENTER.


PROGRAM
T
ALL CLEAR
1. TITLE 02–03
2. TITLE – –
3. TITLE – –
4. TITLE – –
5. TITLE – –
6. TITLE – –
7. TITLE – –
– –
01
02
03
04
05
Selected title and chapter

◆ When playing a VIDEO CD or CD
For example, select track "02."
Press ↑/↓ or the number buttons to select "02" under "T," then press ENTER.


Selected track
PROGRAM
0:15:30
T
ALL CLEAR
1. TRACK 02
2. TRACK – –
3. TRACK – –
4. TRACK – –
5. TRACK – –
6. TRACK – –
7. TRACK – –
– –
01
02
03
04
05
Total time of the programmed tracks

5 To program other titles, chapters, or tracks, repeat Steps 3 to 4.
The programmed titles, chapters, and tracks are displayed in the selected order.

6 Press ▷ to start Program Play.
Program Play begins.
When the program ends, you can restart the same program again by pressing ▷.

To stop Program Play
Press CLEAR.

To turn off the display
Press DISPLAY repeatedly until the display is turned off.

To change or cancel a program

1 Follow Steps 1 and 2 of "Creating your own program (Program Play)."

2 Select the program number of the title, chapter, or track you want to change or cancel using ↑/↓ or the number buttons, and press →.

➡continued

3 Follow Step 4 for new programming. To cancel a program, select "--" under "T," then press ENTER.

To cancel all the titles, chapters, or tracks in the programmed order

1 Follow Steps 1 and 2 of "Creating your own program (Program Play)."

2 Press ↑ and select "ALL CLEAR."

3 Press ENTER.

Hint

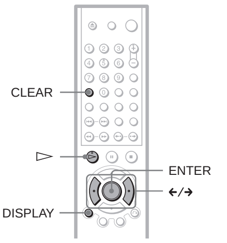
You can do Repeat Play or Shuffle Play of the programmed titles, chapters, or tracks. During Program Play, follow the steps of "Repeat Play" (page 33) or "Shuffle Play" (page 32).

Notes

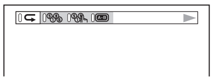
- When playing Super VCDs, the total time of the programmed tracks does not appear on the screen.
- You cannot use this function with VIDEO CDs with PBC playback.

Playing in random order (Shuffle Play) DVD VCD CD

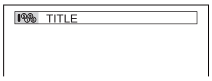
You can have the player "shuffle" titles, chapters, or tracks. Subsequent "shuffling" may produce a different playing order.


CLEAR
▷
ENTER
←/→
DISPLAY

1 Press DISPLAY during playback.
The following Control Bar appears.



2 Press ←/→ to select (SHUFFLE), then press ENTER repeatedly to select the item to be shuffled.



◆ When playing a DVD

- TITLE
- CHAPTER

◆ When playing a VIDEO CD or CD

- TRACK

◆ When Program Play is activated

- ON: shuffles titles, chapters, or tracks selected in Program Play.

To return to normal play
Press CLEAR, or select "OFF" in Step 2.

To turn off the Control Bar
Press DISPLAY repeatedly until the Control Bar is turned off.

Hints

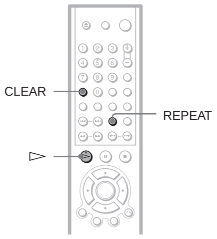
- You can set Shuffle Play while the player is stopped. After selecting the "SHUFFLE" option, press ▷. Shuffle Play starts.
- Up to 200 chapters in a disc can be played in random order when "CHAPTER" is selected.

Note

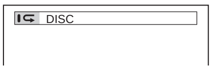
You cannot use this function with VIDEO CDs with PBC playback.

Playing repeatedly (Repeat Play) DVD VCD CD DATA CD

You can play all of the titles or tracks on a disc or a single title, chapter, or track repeatedly.
You can use a combination of Shuffle or Program Play modes.



1 Press REPEAT during playback.
The following display appears.



2 Press REPEAT repeatedly to select the item to be repeated.

◆ When playing a DVD
- DISC: repeats all of the titles.
- TITLE: repeats the current title on a disc.
- CHAPTER: repeats the current chapter.

◆ When playing a VIDEO CD or CD
- DISC: repeats all of the tracks.
- TRACK: repeats the current track.

◆ When playing a DATA CD (MP3 audio)
- DISC: repeats all of the albums.
- ALBUM: repeats the current album.
- TRACK: repeats the current track.

◆ When Program Play or Shuffle Play is activated
- ON: repeats Program Play or Shuffle Play.

To return to normal play
Press CLEAR, or select “OFF” in Step 2.

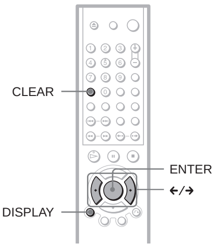
Hints
- You can set Repeat Play while the player is stopped. After selecting the “REPEAT” option, press ▷. Repeat Play starts.
- You can also select “REPEAT” from the Control Bar (page 12).

Note

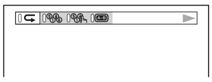
You cannot use this function with VIDEO CDs with PBC playback.

Repeating a specific portion (A-B Repeat Play) DVD VCD CD

You can play a specific portion of a title, chapter or track repeatedly. (This function is useful when you want to memorize lyrics, etc.)



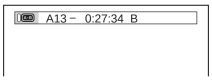
1 Press DISPLAY during playback.
The following Control Bar appears.



2 Press ←/→ to select (A-B REPEAT).

3 During playback, when you find the starting point (point A) of the portion to be played repeatedly, press ENTER.
The starting point (point A) is set.

➡continued



4 When you reach the ending point (point B), press ENTER again.
The set points are displayed and the player starts repeating this specific portion.

To return to normal play
Press CLEAR.

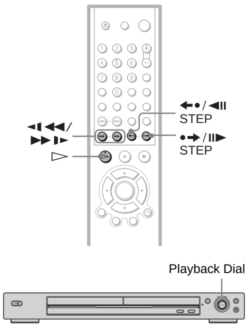
To turn off the Control Bar
Press DISPLAY repeatedly until the Control Bar is turned off.

Note

When you set A-B Repeat Play, the settings for Shuffle Play, Repeat Play, and Program Play are canceled.

Searching for a Particular Point on a Disc (Scan, Slow-motion Play, Search, Freeze Frame)

You can quickly locate a particular point on a disc by monitoring the picture or playing back slowly.



Note

Depending on the DVD/VIDEO CD, you may not be able to do some of the operations described.

Locating a point quickly by playing a disc in fast forward or fast reverse (Scan) DVD VCD CD DATA CD

Press ◄▌◄◄ or ►►▌► while playing a disc. When you find the point you want, press ▷ to return to normal speed. Each time you press ◄▌◄◄ or ►►▌► during scan, the playback speed changes. With each press the indication changes as follows:

Playback direction
×2► → 1►► → 2►► → 3►►
3►► (DVD/VIDEO CD only)
×2► (DVD/CD only)

Opposite direction
×2◄ → 1◄◄ → 2◄◄ → 3◄◄
3◄◄ (DVD/VIDEO CD only)
×2◄ (DVD only)

The “×2►”/“×2◄” playback speed is about twice the normal speed.
The “3►►”/“3◄◄” playback speed is faster than “2►►”/“2◄◄” and the “2►►”/“2◄◄” playback speed is faster than “1►►”/ “1◄◄.”

Watching frame by frame (Slow-motion play) DVD VCD

Press ◄▌◄◄ or ►►▌► when the player is in pause mode. To return to the normal speed, press ▷.
Each time you press ◄▌◄◄ or ►►▌► during Slow-motion play, the playback speed changes. Two speeds are available. With each press the indication changes as follows:

Playback direction
2 ▌► ←→ 1 ▌►

Opposite direction (DVD only)
2 ◄▌ ←→ 1 ◄▌

The “2 ▌►”/“2 ◄▌” playback speed is slower than “1 ▌►”/“1 ◄▌.”

Using the Playback Dial on the player DVD VCD CD DATA CD

You can search for a particular point on a disc in various ways using the Playback Dial.

To go to the next chapter/track/scene
During playback, briefly turn the Playback Dial clockwise to skip to the next chapter/ track/scene, or counterclockwise to skip to the previous ones.

➡continued

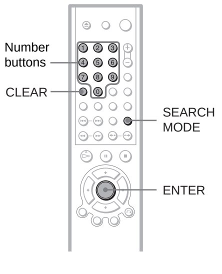
To locate a point quickly (Search)
During playback, turn and hold the Playback Dial clockwise to locate a point in the playback direction, or counterclockwise to locate a point in the opposite direction. When you find the point you want, release the dial to return to normal playback speed.

Playing one frame at a time (Freeze Frame) DVD VCD

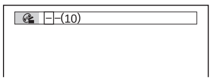
When the player is in the pause mode, press •→/II► STEP to go to the next frame. Press ←•/◄II STEP to go to the preceding frame (DVD only). If you hold the button down, you can view the frames in succession. To return to normal playback, press ▷.

Searching for a Title/Chapter/Track/Scene, etc. (Search mode) DVD VCD CD DATA CD

You can search a DVD by title or chapter, and you can search a VIDEO CD/CD by track, index, or scene. As titles and tracks are assigned unique numbers on the disc, you can select the desired one by entering its number. Or, you can search for a scene using the time code.



1 Press SEARCH MODE.
The following display appears.
“-- (∗∗)” appears next to the icon (∗∗ refers to a number).
The number in parentheses indicates the total number of titles, tracks, indexes, scenes, etc. of the disc.



2 Press SEARCH MODE repeatedly to select the search method.

◆ When playing a DVD
- TITLE
- CHAPTER
- TIME/TEXT
- NUMBER INPUT

Select "TIME/TEXT" to search for a starting point by inputting the time code.

◆ When playing a VIDEO CD without PBC playback
- TRACK
- INDEX

◆ When playing a VIDEO CD with PBC Playback
- SCENE
- INDEX

◆ When playing a CD
- TRACK
- INDEX

◆ When playing a DATA CD (MP3 audio)
- ALBUM
- TRACK

3 Select the number of the title, track, scene, time code, etc. you want by pressing the number buttons to select the digit.

For example, to find the scene at 2 hours, 10 minutes, and 20 seconds after the beginning, select "TIME/TEXT" in Step 2 and enter "2:10:20."

If you make a mistake

Cancel the number by pressing CLEAR, then select another number.

4 Press ENTER.

The player starts playback from the selected number.

Hint

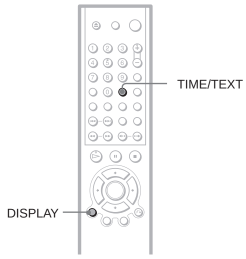
When the display is turned off, you can search for a chapter (DVD) or track (CD) by pressing the number buttons and ENTER.

Notes
- You cannot search for a scene on a DVD+RW using the time code.
- The title, chapter, or track number displayed is the same number recorded on the disc.

Viewing Information About the Disc

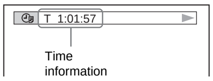
Checking the Playing Time and Remaining Time DVD VCD CD DATA CD

You can check the playing time and remaining time of the current title, chapter, or track. Also, you can check the DVD/CD text or track name (MP3 audio) recorded on the disc.


TIME/TEXT
DISPLAY

1 Press TIME/TEXT during playback.

The following display appears.


T 1:01:57
Time information

2 Press TIME/TEXT repeatedly to change the time information.

The display and the kinds of time that you can change depend on the disc you are playing.

◆ When playing a DVD
- T ∗:∗:∗ (hours: minutes: seconds)
  Playing time of the current title
- T– ∗:∗:∗
  Remaining time of the current title
- C ∗:∗:∗
  Playing time of the current chapter
- C– ∗:∗:∗
  Remaining time of the current chapter

◆ When playing a VIDEO CD (with PBC functions)
- ∗:∗ (minutes: seconds)
  Playing time of the current scene

◆ When playing a VIDEO CD (without PBC functions) or CD
- T ∗:∗ (minutes: seconds)
  Playing time of the current track
- T–∗:∗
  Remaining time of the current track
- D ∗:∗
  Playing time of the current disc
- D–∗:∗
  Remaining time of the current disc

◆ When playing a DATA CD (MP3 audio)
- ∗:∗ (minutes: seconds)
  Playing time of the current track

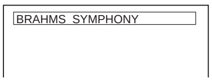
◆ When playing a Super VCD
- T ∗:∗ (minutes: seconds)
  Playing time of the current track

To check the DVD/CD text or track name (MP3 audio)

Press TIME/TEXT repeatedly in Step 2 to display text recorded on the DVD/CD/DATA CD.

The DVD/CD text appears only when text is recorded in the disc. You cannot change the text. If the disc does not contain text, "NO TEXT" appears.

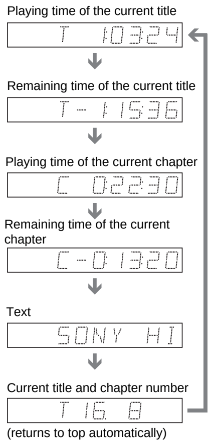
For DATA CDs, only the track name of the MP3 audio track appears.


BRAHMS SYMPHONY

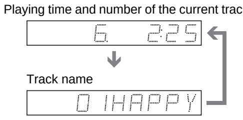
Checking the information on the front panel display

You can view the time information and text displayed on the TV screen also on the front panel display. The information on the front panel display changes as follows when you change the time information on your TV screen.

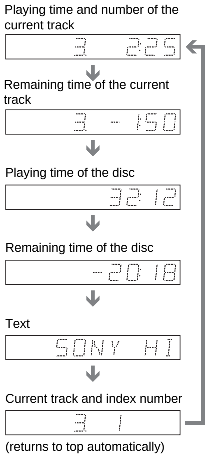
When playing a DVD


Playing time of the current title
T 1:03:24
Remaining time of the current title
T – 1:15:36
Playing time of the current chapter
C 0:22:30
Remaining time of the current chapter
C – 0:13:20
Text
SONY HI
Current title and chapter number
T 16. 8
(returns to top automatically)

When playing a DATA CD (MP3 audio)


Playing time and number of the current track
6. 2:25
Track name
01HAPPY

When playing a VIDEO CD (without PBC functions) or CD


Playing time and number of the current track
3. 2:25
Remaining time of the current track
3. – 1:50
Playing time of the disc
32:12
Remaining time of the disc
–20:18
Text
SONY HI
Current track and index number
3. 1
(returns to top automatically)

Hints
- When playing VIDEO CDs with PBC functions, the scene number or the playing time are displayed.
- Long text that does not fit in a single line will scroll across the front panel display.
- You can also check the time information and text using the Control Bar (page 12).

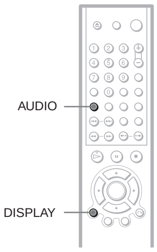
Notes
- Depending on the type of disc being played, the DVD/CD text or track name may not be displayed.
- The player can only display the first level of the DVD/CD text, such as the disc name or title.
- Playing time of MP3 audio tracks may not be displayed correctly.

Sound Adjustments

Changing the Sound DVD VCD CD DATA CD

When playing a DVD recorded in multiple audio formats (PCM, Dolby Digital, or DTS), you can change the audio format. If the DVD is recorded with multilingual tracks, you can also change the language.

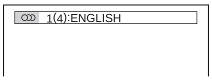
With CDs, DATA CDs, or VIDEO CDs, you can select the sound from the right or left channel and listen to the sound of the selected channel through both the right and left speakers. For example, when playing a disc containing a song with the vocals on the right channel and the instruments on the left channel, you can hear the instruments from both speakers by selecting the left channel.


AUDIO
DISPLAY

1 Press AUDIO during playback.

The following display appears.

The number in parentheses indicates the total number of available audio signals.



2 Press AUDIO repeatedly to select the desired audio signal.

◆ When playing a DVD

Depending on the DVD, the choice of language varies.

When 4 digits are displayed, they indicate a language code. Refer to "Language Code List" on page 64 to see which language the code represents.

When the same language is displayed two or more times, the DVD is recorded in multiple audio formats.

◆ When playing a VIDEO CD, CD, or DATA CD (MP3 audio)

The default setting is underlined.
- STEREO: The standard stereo sound
- 1/L: The sound of the left channel (monaural)
- 2/R: The sound of the right channel (monaural)

◆ When playing a Super VCD

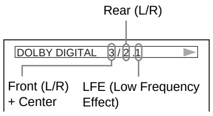
The default setting is underlined.
- 1:STEREO: The stereo sound of the audio track 1
- 1:1/L: The sound of the left channel of the audio track 1 (monaural)
- 1:2/R: The sound of the right channel of the audio track 1 (monaural)
- 2:STEREO: The stereo sound of the audio track 2
- 2:1/L: The sound of the left channel of the audio track 2 (monaural)
- 2:2/R: The sound of the right channel of the audio track 2 (monaural)

Checking the audio signal format DVD

If you press DISPLAY repeatedly during playback, the format of the current audio signal (Dolby Digital, DTS, PCM, etc.) appears as shown below.

Example:

Dolby Digital 5.1 ch


Rear (L/R)
DOLBY DIGITAL 3/2.1
Front (L/R) + Center
LFE (Low Frequency Effect)

About audio signals

Audio signals recorded in a disc contain the sound elements (channels) shown below. Each channel is output from a separate speaker.

- Front (L)
- Front (R)
- Center
- Rear (L)
- Rear (R)
- Rear (Monaural): This signal can be either the Dolby Surround Sound processed signals or the Dolby Digital sound's monaural rear audio signals.
- LFE (Low Frequency Effect) signal

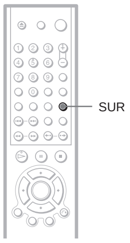
Notes

- If "DTS" is set to "OFF" in "AUDIO SETUP," the DTS track selection option will not appear on the screen even if the disc contains DTS tracks (page 58).
- While playing a Super VCD on which the audio track 2 is not recorded, no sound will come out when you select "2:STEREO," "2:1/L," or "2:2/R."

TV Virtual Surround Settings (TVS) DVD

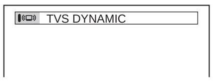
When you connect a stereo TV or 2 front speakers, TVS (TV Virtual Surround) lets you enjoy surround sound effects by using sound imaging to create virtual rear speakers from the sound of the front speakers (L: left, R: right) without using actual rear speakers. TVS was developed by Sony to produce surround sound for home use using just a stereo TV.

If the player is set up to output the signal from the DIGITAL OUT (COAXIAL) jack, the surround effect will only be heard when "DOLBY DIGITAL" is set to "D-PCM" (page 58).



1 Press SUR during playback.

The following display appears.



2 Press SUR repeatedly to select one of the TVS sounds.

Refer to the following explanations given for each item.

- TVS DYNAMIC
- TVS WIDE
- TVS NIGHT
- TVS STANDARD

➔continued

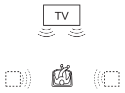
To cancel the setting

Select "OFF" in Step 2.

◆TVS DYNAMIC

Creates virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers (shown below).

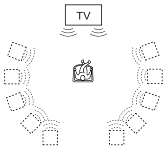
This mode is effective when the distance between the front L and R speakers is short, such as with built-in speakers on a stereo TV.



◆TVS WIDE

Creates virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers. The virtual speakers are reproduced as shown in the illustration below.

This mode is effective when the distance between the front L and R speakers is short, such as with built-in speakers on a stereo TV.

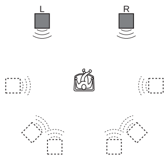


◆TVS NIGHT

Large sounds, such as explosions, are suppressed, but the quieter sounds are unaffected. This feature is useful when you want to hear the dialog and enjoy the surround sound effects of "TVS WIDE" at low volume.

◆TVS STANDARD

Creates virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers. The virtual speakers are reproduced as shown in the illustration below. Use this setting when you want to use TVS with 2 separate speakers.



L: Front speaker (left)
R: Front speaker (right)
⬚: Virtual speaker

Hints

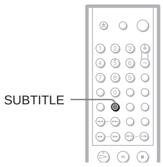
- You can select "TVS" by pressing the SURROUND button on the player.
- You can also select "TVS" from the Control Bar (page 12).

Notes

- When the playing signal does not contain a signal for the rear speakers, the surround effects will be difficult to hear.
- When you select one of the TVS modes, turn off the surround setting of the connected TV or amplifier (receiver).
- Make sure that your listening position is between and at an equal distance from your speakers, and that the speakers are located in similar surroundings.
- Not all discs will respond to the "TVS NIGHT" function in the same way.

Displaying the Subtitles DVD

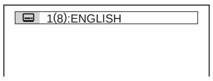
If subtitles are recorded on the discs, you can change the subtitles or turn them on and off whenever you want while playing a DVD.



1 Press SUBTITLE during playback.

The following display appears.

The number in parentheses indicates the total number of available subtitles.



2 Press SUBTITLE repeatedly to select the language.

Depending on the DVD, the choice of language varies.

When 4 digits are displayed, they indicate a language code. Refer to "Language Code List" on page 64 to see which language the code represents.

To turn off the subtitles

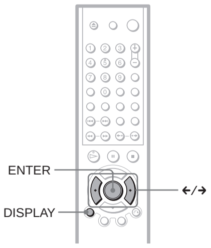
Select "OFF" in Step 2.

Note

Depending on the DVD, you may not be able to change the subtitles even if multilingual subtitles are recorded on it. You also may not be able to turn them off.

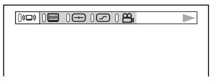
Adjusting the Picture Quality (BNR) DVD VCD

The Block Noise Reduction (BNR) function adjusts the picture quality by reducing the "block noise" or mosaic like patterns that appear on your TV screen.

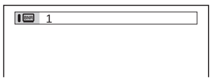


1 Press DISPLAY twice during playback.

The following Control Bar appears.



2 Press ←/→ to select BNR (BNR), then press ENTER repeatedly to select a level.



- 1: reduces the "block noise."
- 2: reduces the "block noise" more than 1.
- 3: reduces the "block noise" more than 2.

➔continued

To cancel the "BNR" setting

Select "OFF" in Step 2.

To turn off the Control Bar

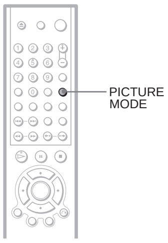
Press DISPLAY repeatedly until the Control Bar is turned off.

Notes

- If the outlines of the images on your screen should become blurred, set "BNR" to "OFF."
- Depending on the disc or the scene being played, there may be no "BNR" effect, or it may be hard to discern.

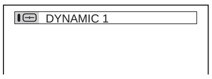
Adjusting the Playback Picture (CUSTOM PICTURE MODE) DVD VCD

You can adjust the video signal of the DVD or VIDEO CD from the player to obtain the picture quality you want. Choose the setting that best suits the program you are watching.



1 Press PICTURE MODE during playback.

The following display appears.



2 Press PICTURE MODE repeatedly to select the setting you want.

The default setting is underlined.

- STANDARD: displays a standard picture.
- DYNAMIC 1: produces a bold dynamic picture by increasing the picture contrast and the color intensity.
- DYNAMIC 2: produces a more dynamic picture than DYNAMIC 1 by further increasing the picture contrast and the color intensity.
- CINEMA 1: enhances details in dark areas by increasing the black level.

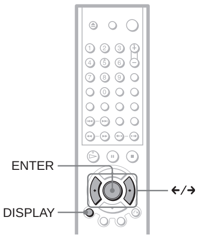
- CINEMA 2: White colors become brighter and black colors become richer, and the color contrast is increased.

Hints

- When you watch a movie, "CINEMA 1" or "CINEMA 2" is recommended.
- You can also select the "CUSTOM PICTURE MODE" from the Control Bar (page 12).

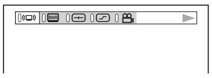
Enhancing the Playback Picture (DIGITAL VIDEO ENHANCER) DVD VCD

The Digital Video Enhancer (DVE) function makes the picture appear clear and crisp by enhancing the outlines of images on your TV screen. Also, this function can soften the images on the screen.

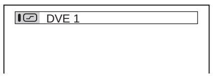


1 Press DISPLAY twice during playback.

The following display appears.



2 Press ←/→ to select (DIGITAL VIDEO ENHANCER), then press ENTER repeatedly to select a level.


DVE 1

- DVE 1: enhances the outline.
- DVE 2: enhances the outline more than DVE 1.
- DVE 3: enhances the outline more than DVE 2.
- SOFT: softens the image (DVD only).

➔continued

To cancel the "DIGITAL VIDEO ENHANCER" setting

Select "OFF" in Step 2.

To turn off the Control Bar

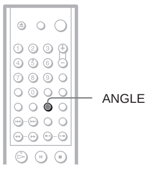
Press DISPLAY repeatedly until the Control Bar is turned off.

Note

Depending on the disc or the scene being played, noise found in the disc may become more apparent. If this happens, it is recommended that you use the BNR function (page 43) with the DVE function. If the condition still does not improve, reduce the Digital Video Enhancer level, or select "SOFT" (DVD only) in Step 2 above.

Changing the Angles DVD

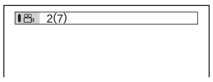
If various angles (multi-angles) for a scene are recorded on the DVD, "" appears in the front panel display. This means that you can change the viewing angle.



1 Press ANGLE during playback.

The number of the angle appears on the display.

The number in parentheses indicates the total number of angles.


2(7)

2 Press ANGLE repeatedly to select the angle number.

The scene changes to the selected angle.

Hint

You can also select "ANGLE" from the Control Bar (page 12).

Note

Depending on the DVD, you may not be able to change the angles even if multi-angles are recorded on the DVD.

Locking Discs (CUSTOM PARENTAL CONTROL, PARENTAL CONTROL)

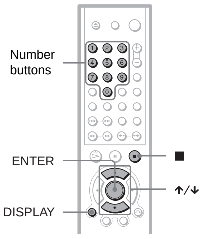
You can set two kinds of playback restrictions for the desired disc.

- Custom Parental Control
  You can set playback restrictions so that the player will not play inappropriate discs.
- Parental Control
  Playback of some DVDs can be limited according to a predetermined level such as the age of the users. Scenes may be blocked or replaced with different scenes.

The same password is used for both Parental Control and Custom Parental Control.

Custom Parental Control DVD VCD CD

You can set the same Custom Parental Control password for up to 40 discs. When you set the 41st-disc, the first disc is canceled.

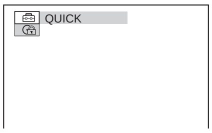


1 Insert the disc you want to lock.

If the disc is playing, press ■ to stop playback.

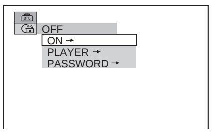
2 Press DISPLAY while the player is in stop mode.

The following Control Bar appears.


QUICK

3 Press ↑/↓ to select (PARENTAL CONTROL), then press ENTER.

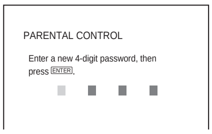
The options for "PARENTAL CONTROL" appear.


OFF
ON →
PLAYER →
PASSWORD →

4 Press ↑/↓ to select "ON →," then press ENTER.

◆ If you have not entered a password

The display for registering a new password appears.


PARENTAL CONTROL

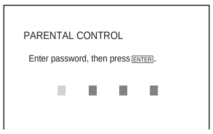
Enter a new 4-digit password, then press ENTER.

Enter a 4-digit password using the number buttons, then press ENTER.

The display for confirming the password appears.

◆ When you have already registered a password

The display for entering the password appears.


PARENTAL CONTROL

Enter password, then press ENTER.

➔continued

5 Enter or re-enter your 4-digit password using the number buttons, then press ENTER.

"Custom parental control is set." appears when you enter your password.

To turn off the Custom Parental Control function

1 Follow Steps 1 through 3 of "Custom Parental Control."

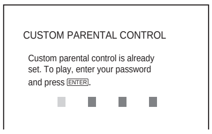
2 Press ↑/↓ to select "OFF →," then press ENTER.

3 Enter your 4-digit password using the number buttons, then press ENTER.

To play a disc for which Custom Parental Control is set

1 Insert the disc for which Custom Parental Control is set.

The "CUSTOM PARENTAL CONTROL" display appears.


CUSTOM PARENTAL CONTROL

Custom parental control is already set. To play, enter your password and press ENTER.

2 Enter your 4-digit password using the number buttons, then press ENTER.

The player is ready for playback.

Hint

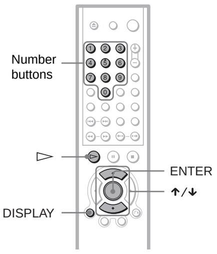
If you forget your password, enter the 6-digit number "199703" using the number buttons when the "CUSTOM PARENTAL CONTROL" display asks you for your password, then press ENTER. The display will ask you to enter a new 4-digit password.

Note

Once you set Custom Parental Control with a recorded disc such as a DVD-RW, the display for entering the password may appear again when you insert a different recorded disc. Input the password to play the disc.

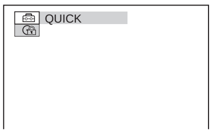
Parental Control (limiting playback by children) DVD

Playback of some DVDs can be limited according to a predetermined level such as the age of the users. The "PARENTAL CONTROL" function allows you to set a playback limitation level.



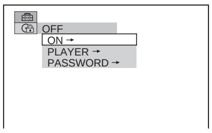
1 Press DISPLAY while the player is in stop mode.

The following Control Bar appears.


QUICK

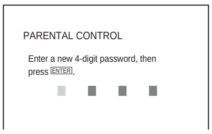
2 Press ↑/↓ to select (PARENTAL CONTROL), then press ENTER.

The options for "PARENTAL CONTROL" appear.


OFF
ON →
PLAYER →
PASSWORD →

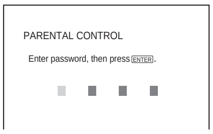
3 Press ↑/↓ to select "PLAYER →," then press ENTER.

◆ If you have not entered a password
The display for registering a new password appears.

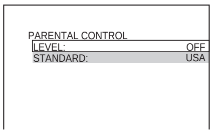

PARENTAL CONTROL
Enter a new 4-digit password, then press ENTER.

Enter a 4-digit password using the number buttons, then press ENTER.
The display for confirming the password appears.

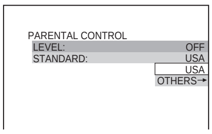
◆ When you have already registered a password
The display for entering the password appears.


PARENTAL CONTROL
Enter password, then press ENTER.

4 Enter or re-enter your 4-digit password using the number buttons, then press ENTER.
The display for setting the playback limitation level appears.

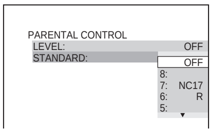

PARENTAL CONTROL
LEVEL: OFF
STANDARD: USA

5 Press ↑/↓ to select "STANDARD," then press ENTER.
The selection items for "STANDARD" are displayed.

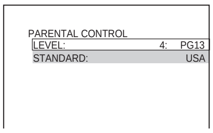

PARENTAL CONTROL
LEVEL: OFF
STANDARD: USA
USA
OTHERS →

6 Press ↑/↓ to select a geographic area as the playback limitation level, then press ENTER.
The area is selected.
When you select "OTHERS →," select and enter a standard code in the table on page 50 using the number buttons.

7 Press ↑/↓ to select "LEVEL," then press ENTER.
The selection items for "LEVEL" are displayed.


PARENTAL CONTROL
LEVEL: OFF
STANDARD:
OFF
8:
7: NC17
6: R
5:

8 Select the level you want using ↑/↓, then press ENTER.
Parental Control setting is complete.


PARENTAL CONTROL
LEVEL: 4: PG13
STANDARD: USA

The lower the value, the stricter the limitation.

➡continued

To turn off the Parental Control function
Set "LEVEL" to "OFF" in Step 8.

To play a disc for which Parental Control is set

1 Insert the disc and press ▷.
The display for entering your password appears.

2 Enter your 4-digit password using the number buttons, then press ENTER.
The player starts playback.

Hint
If you forget your password, remove the disc and repeat Steps 1 to 3 of "Parental Control (limiting playback by children). When you are asked to enter your password, enter "199703" using the number buttons, then press ENTER. The display will ask you to enter a new 4-digit password. After you enter a new 4-digit password, replace the disc in the player and press ▷. When the display for entering your password appears, enter your new password.

Notes

- When you play discs which do not have the Parental Control function, playback cannot be limited on this player.
- Depending on the disc, you may be asked to change the parental control level while playing the disc. In this case, enter your password, then change the level. If the Resume Play mode is canceled, the level returns to the previous level.

Area Code

Standard	Code number	Standard	Code number
Argentina	2044	Korea	2304
Australia	2047	Malaysia	2363
Austria	2046	Mexico	2362
Belgium	2057	Netherlands	2376
Brazil	2070	New Zealand	2390
Canada	2079	Norway	2379
Chile	2090	Pakistan	2427
China	2092	Philippines	2424
Denmark	2115	Portugal	2436
Finland	2165	Russia	2489
France	2174	Singapore	2501
Germany	2109	Spain	2149
India	2248	Sweden	2499
Indonesia	2238	Switzerland	2086
Italy	2254	Thailand	2528
Japan	2276	United Kingdom	2184

Changing the password

1 Press DISPLAY while the player is in stop mode.
The Control Bar appears.

2 Press ↑/↓ to select (PARENTAL CONTROL), then press ENTER.
The options for "PARENTAL CONTROL" appear.

3 Press ↑/↓ to select "PASSWORD →," then press ENTER.
The display for entering the password appears.

4 Enter your 4-digit password using the number buttons, then press ENTER.

5 Enter a new 4-digit password using the number buttons, then press ENTER.

6 To confirm your password, re-enter it using the number buttons, then press ENTER.

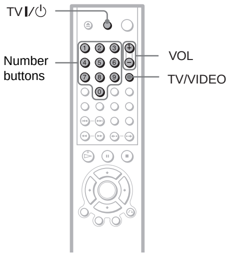
If you make a mistake entering your password
Press ← before you press ENTER and input the correct number.

If you make a mistake
Press ↶ RETURN.

To turn off the display
Press DISPLAY repeatedly until the display is turned off.

Controlling Your TV with the Supplied Remote

You can control the sound level, input source, and power switch of your Sony TV with the supplied remote.



You can control your TV using the buttons below.

By pressing	You can
TV I/⏻	Turn the TV on or off
VOL +/–	Adjust the volume of the TV
TV/VIDEO	Switch the TV's input source between the TV and other input sources

Note
Depending on the unit being connected, you may not be able to control your TV using some of the buttons.

➡continued

Controlling other TVs with the remote

You can control the sound level, input source, and power switch of non-Sony TVs as well. If your TV is listed in the table below, set the appropriate manufacturer's code.

1 While holding down TV I/⏻, press the number buttons to select your TV's manufacturer's code (see the table below).

2 Release TV I/⏻.

Code numbers of controllable TVs

Manufacturer	Code number
Sony (default)	01
JVC	09
Panasonic	19
Philips	21
RCA	10
Samsung	20
Sanyo	11
Sharp	18
Toshiba	07
Zenith	15

Notes

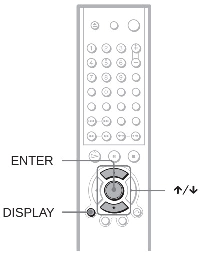
- If you enter a new code number, the code number previously entered will be erased.
- When you replace the batteries of the remote, the code number you have set may be reset to the default setting. Set the appropriate code number again.

Using the Setup Display

By using the Setup Display, you can make various adjustments to items such as picture and sound. You can also set a language for the subtitles and the Setup Display, among other things. For details on each Setup Display item, see pages from 54 to 58.

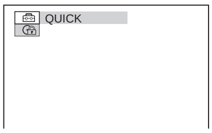
Note

Playback settings stored in the disc take priority over the Setup Display settings and not all the functions described may work.



1 Press DISPLAY when the player is in stop mode.

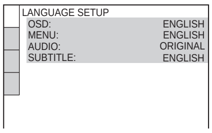
The Control Bar appears.


QUICK

2 Press ↑/↓ to select (SETUP), then press ENTER.

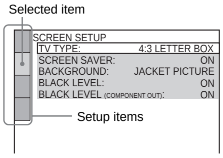
3 Press ↑/↓ to select "CUSTOM," then press ENTER.

The Setup Display appears.


LANGUAGE SETUP
OSD: ENGLISH
MENU: ENGLISH
AUDIO: ORIGINAL
SUBTITLE: ENGLISH

4 Press ↑/↓ to select the setup item from the displayed list: "LANGUAGE SETUP," "SCREEN SETUP," "CUSTOM SETUP," or "AUDIO SETUP." Then press ENTER.

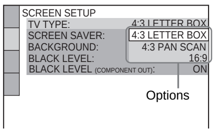
The Setup item is selected.
Example: "SCREEN SETUP"



SCREEN SETUP
TV TYPE: 4:3 LETTER BOX
SCREEN SAVER: ON
BACKGROUND: JACKET PICTURE
BLACK LEVEL: ON
BLACK LEVEL (COMPONENT OUT): ON

5 Select an item using ↑/↓, then press ENTER.

The options for the selected item appear.
Example: "TV TYPE"

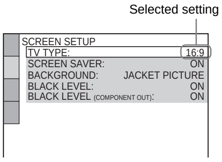


SCREEN SETUP
TV TYPE: 4:3 LETTER BOX
SCREEN SAVER: 4:3 LETTER BOX
BACKGROUND: 4:3 PAN SCAN
BLACK LEVEL: 16:9
BLACK LEVEL (COMPONENT OUT): ON

➡continued

6 Select a setting using ↑/↓, then press ENTER.

The setting is selected and setup is complete.
Example: "16:9"



SCREEN SETUP
TV TYPE: 16:9
SCREEN SAVER: ON
BACKGROUND: JACKET PICTURE
BLACK LEVEL: ON
BLACK LEVEL (COMPONENT OUT): ON

To turn off the display

Press DISPLAY repeatedly until the display is turned off.

To enter the Quick Setup mode

Select "QUICK" in Step 3. Follow from Step 5 of the Quick Setup explanation to make basic adjustments (page 22).

To reset all of the "SETUP" settings

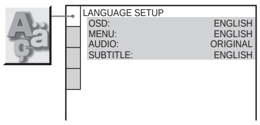
If you select "RESET" in Step 3, you can reset all of the "SETUP" settings on pages 54 to 58 to the default settings. After you select "RESET" and press ENTER, select "YES" and press ENTER to reset the settings (it takes a few seconds to complete), or select "NO" and press ENTER to return to the Control Bar. Do not press I/⏻ when resetting the player.

Setting the Display or Sound Track Language

(LANGUAGE SETUP)

"LANGUAGE SETUP" allows you to set various languages for the on-screen display or sound track.

Select "LANGUAGE SETUP" in the Setup Display. To use the display, see "Using the Setup Display" (page 53).


LANGUAGE SETUP
OSD: ENGLISH
MENU: ENGLISH
AUDIO: ORIGINAL
SUBTITLE: ENGLISH

◆ OSD (On-Screen Display)
Switches the display language on the screen.

◆ MENU (DVD only)
You can select the desired language for the disc's menu.

◆ AUDIO (DVD only)
Switches the language of the sound track.
When you select "ORIGINAL," the language given priority in the disc is selected.

◆ SUBTITLE (DVD only)
Switches the language of the subtitle recorded on the DVD.
When you select "AUDIO FOLLOW," the language for the subtitles changes according to the language you selected for the sound track.

Hint

If you select "OTHERS →" in "MENU," "SUBTITLE," or "AUDIO," select and enter a language code from "Language Code List" on page 64 using the number buttons.

Note

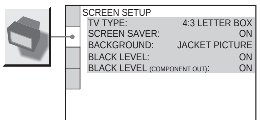
When you select a language in "MENU," "SUBTITLE," or "AUDIO" that is not recorded on the DVD, one of the recorded languages will be automatically selected.

Settings for the Display

(SCREEN SETUP)

Choose settings according to the TV to be connected.

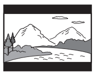
Select "SCREEN SETUP" in the Setup Display. To use the display, see "Using the Setup Display" (page 53).
The default settings are underlined.


SCREEN SETUP
TV TYPE: 4:3 LETTER BOX
SCREEN SAVER: ON
BACKGROUND: JACKET PICTURE
BLACK LEVEL: ON
BLACK LEVEL (COMPONENT OUT): ON

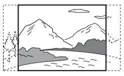
◆ TV TYPE
Selects the aspect ratio of the connected TV (4:3 standard or wide).

4:3 LETTER BOX	Select this when you connect a 4:3 screen TV. Displays a wide picture with bands on the upper and lower portions of the screen.
4:3 PAN SCAN	Select this when you connect a 4:3 screen TV. Automatically displays the wide picture on the entire screen and cuts off the portions that do not fit.
16:9	Select this when you connect a wide-screen TV or a TV with a wide mode function.

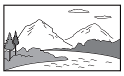
4:3 LETTER BOX



4:3 PAN SCAN



16:9



Note

Depending on the DVD, "4:3 LETTER BOX" may be selected automatically instead of "4:3 PAN SCAN" or vice versa.

◆ SCREEN SAVER
The screen saver image appears when you leave the player in pause or stop mode for 15 minutes, or when you play back a CD or DATA CD (MP3 audio) for more than 15 minutes. The screen saver will help prevent your display device from becoming damaged (ghosting). Press ▷ to turn off the screen saver.

ON	Turns on the screen saver.
OFF	Turns off the screen saver.

◆ BACKGROUND
Selects the background color or picture on the TV screen in stop mode or while playing a CD or DATA CD (MP3 audio).

JACKET PICTURE	The jacket picture (still picture) appears, but only when the jacket picture is already recorded on the disc (CD-EXTRA, etc.). If the disc does not contain a jacket picture, the "GRAPHICS" picture appears.
GRAPHICS	A preset picture stored in the player appears.
BLUE	The background color is blue.
BLACK	The background color is black.

◆ BLACK LEVEL
Selects the black level (setup level) for the video signals output from the jacks other than COMPONENT VIDEO OUT.

ON	Sets the black level of the output signal to the standard level.
OFF	Lowers the standard black level. Use this when the picture becomes too white.

➡continued

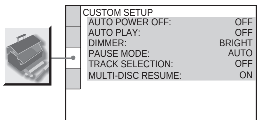
◆ BLACK LEVEL (COMPONENT OUT)
Selects the black level (setup level) for the video signals output from the COMPONENT VIDEO OUT jacks.

ON	Sets the black level of the output signal to the standard level.
OFF	Lowers the standard black level. Use this when the picture becomes too white.

Custom Settings (CUSTOM SETUP)

Use this to set up playback related and other settings.

Select "CUSTOM SETUP" in the Setup Display. To use the display, see "Using the Setup Display" (page 53).
The default settings are underlined.


CUSTOM SETUP
AUTO POWER OFF: OFF
AUTO PLAY: OFF
DIMMER: BRIGHT
PAUSE MODE: AUTO
TRACK SELECTION: OFF
MULTI-DISC RESUME: ON

◆ AUTO POWER OFF
Switches the Auto Power Off setting on or off.

OFF	Switches this function off.
ON	The player enters standby mode when left in stop mode for more than 30 minutes.

◆ AUTO PLAY
Switches the Auto Play setting on or off. This function is useful when the player is connected to a timer (not supplied).

OFF	Switches this function off.
ON	Automatically starts playback when the player is turned on.

◆ DIMMER
Adjusts the lighting of the front panel display.

BRIGHT	Makes the lighting bright.
DARK	Makes the lighting dark.

◆ PAUSE MODE (DVD only)
Selects the picture in pause mode.

AUTO	The picture, including subjects that move dynamically, is output with no jitter. Normally select this position.
FRAME	The picture, including subjects that do not move dynamically, is output in high resolution.

◆ TRACK SELECTION (DVD only)
Gives the sound track which contains the highest number of channels priority when you play a DVD on which multiple audio formats (PCM, DTS, or Dolby Digital format) are recorded.

OFF	No priority given.
AUTO	Priority given.

Notes

- When you set the item to “AUTO,” the language may change. The “TRACK SELECTION” setting has higher priority than the “AUDIO” settings in “LANGUAGE SETUP” (page 54).
- If you set “DTS” to “OFF” (page 58), the DTS sound track is not played even if you set “TRACK SELECTION” to “AUTO.”
- If PCM, DTS, and Dolby Digital sound tracks have the same number of channels, the player selects PCM, DTS, and Dolby Digital sound tracks in this order.

◆ MULTI-DISC RESUME (DVD/VIDEO CD only)
Switches the Multi-disc Resume setting on or off. Resume playback can be stored in memory for up to 6 different DVD/VIDEO CD discs (page 26).

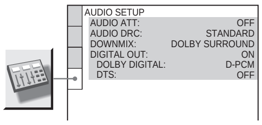
ON	Stores the resume settings in memory for up to six discs (The settings remain in memory even if you select OFF.)
OFF	Does not store the resume settings in memory. Playback restarts at the resume point only for the current disc in the player.

Settings for the Sound

(AUDIO SETUP)

“AUDIO SETUP” allows you to set the sound according to the playback and connection conditions.

Select “AUDIO SETUP” in the Setup Display. To use the display, see “Using the Setup Display” (page 53).
The default settings are underlined.


AUDIO SETUP
AUDIO ATT: OFF
AUDIO DRC: STANDARD
DOWNMIX: DOLBY SURROUND
DIGITAL OUT: ON
DOLBY DIGITAL: D-PCM
DTS: OFF

◆ AUDIO ATT (attenuation)
If the playback sound is distorted, set this item to “ON.” The player reduces the audio output level.
This function affects the output of the LINE OUT L/R (AUDIO) jacks.

OFF	Normally, select this position.
ON	Select this when the playback sound from the speakers is distorted.

◆ AUDIO DRC (Dynamic Range Control) (DVD only)
Makes the sound clear when the volume is turned down when playing a DVD that conforms to “AUDIO DRC.” This affects the output from the following jacks:
– LINE OUT L/R (AUDIO) jacks
– DIGITAL OUT (COAXIAL) jack only when “DOLBY DIGITAL” is set to “D-PCM” (page 58).

STANDARD	Normally select this position.
TV MODE	Makes the low sounds clear even if you turn the volume down.
WIDE RANGE	Gives you the feeling of being at a live performance.

➡continued

◆ DOWNMIX (DVD only)
Switches the method for mixing down to 2 channels when you play a DVD which has rear sound elements (channels) or is recorded in Dolby Digital format. For details on the rear signal components, see “Checking the audio signal format” (page 40). This function affects the output of the following jacks:
– LINE OUT L/R (AUDIO) jacks
– DIGITAL OUT (COAXIAL) jack when “DOLBY DIGITAL” is set to “D-PCM” (page 58).

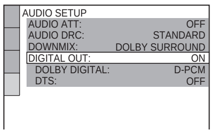
DOLBY SURROUND	Normally, select this position. Multi-channel audio signals are output to two channels for enjoying surround sounds.
NORMAL	Multi-channel audio signals are downmixed to two channels for use with your stereo.

◆ DIGITAL OUT
Selects if audio signals are output via the DIGITAL OUT (COAXIAL) jack.

ON	Normally select this position. When you select “ON,” see “Setting the digital output signal” for further settings.
OFF	The influence of the digital circuit upon the analog circuit is minimal.

Setting the digital output signal

Switches the method of outputting audio signals when you connect a component such as an amplifier (receiver) or MD deck with a digital input jack.
For connection details, see page 17.
Select “DOLBY DIGITAL” and “DTS” after setting “DIGITAL OUT” to “ON.”


AUDIO SETUP
AUDIO ATT: OFF
AUDIO DRC: STANDARD
DOWNMIX: DOLBY SURROUND
DIGITAL OUT: ON
DOLBY DIGITAL: D-PCM
DTS: OFF

If you connect a component that does not conform to the selected audio signal, a loud noise (or no sound) will come out from the speakers, affecting your ears or causing the speakers to be damaged.

◆ DOLBY DIGITAL (DVD only)
Selects the type of Dolby Digital signal.

D-PCM	Select this when the player is connected to an audio component without a built-in Dolby Digital decoder. You can select whether the signals conform to Dolby Surround (Pro Logic) or not by making adjustments to the “DOWNMIX” item in “AUDIO SETUP” (page 58).
DOLBY DIGITAL	Select this when the player is connected to an audio component with a built-in Dolby Digital decoder.

◆ DTS (DVD only)
Selects whether or not to output DTS signals.

OFF	Select this when the player is connected to an audio component without a built-in DTS decoder.
ON	Select this when the player is connected to an audio component with a built-in DTS decoder.

Troubleshooting

If you experience any of the following difficulties while using the player, use this troubleshooting guide to help remedy the problem before requesting repairs.
Should any problem persist, consult your nearest Sony dealer (for customers in the U.S.A only).

Power

The power is not turned on.
➡ Check that the AC power cord is connected securely.

Picture

There is no picture/picture noise appears.
➡ Re-connect the connecting cord securely.
➡ The connecting cords are damaged.
➡ Check the connection to your TV (page 15) and switch the input selector on your TV so that the signal from the player appears on the TV screen.
➡ The disc is dirty or flawed.
➡ If the picture output from your player goes through your VCR to get to your TV or if you are connected to a combination TV/VIDEO player, the copy-protection signal applied to some DVD programs could affect picture quality. If you still experience problems even when you connect your player directly to your TV, please try connecting your player to your TV’s S VIDEO input (page 15).

Even though you set the aspect ratio in “TV TYPE” of “SCREEN SETUP,” the picture does not fill the screen.
➡ The aspect ratio of the disc is fixed on your DVD.

Sound

There is no sound.
➡ Re-connect the connecting cord securely.
➡ The connecting cord is damaged.
➡ The player is connected to the wrong input jack on the amplifier (receiver) (page 19, 20, 21).
➡ The amplifier (receiver) input is not correctly set.
➡ The player is in pause mode or in Slow-motion Play mode.
➡ The player is in fast forward or fast reverse mode.
➡ If the audio signal does not come through the DIGITAL OUT (COAXIAL) jack, check the audio settings (page 58).
➡ While playing a Super VCD on which the audio track 2 is not recorded, no sound will come out when you select “2:STEREO,” “2:1/L,” or “2:2/R.”

Sound is noisy.
➡ When playing a CD with DTS sound tracks, noise will come from the LINE OUT L/R (AUDIO) jacks (page 24) or DIGITAL OUT (COAXIAL) jack.

Sound distortion occurs.
➡ Set “AUDIO ATT” in “AUDIO SETUP” to “ON” (page 57).

The sound volume is low.
➡ The sound volume is low on some DVDs. The sound volume may improve if you set “AUDIO DRC” to “TV MODE” (page 57).
➡ Set “AUDIO ATT” in “AUDIO SETUP” to “OFF” (page 57).

Operation

The remote does not function.
➡ There are obstacles between the remote and the player.
➡ The distance between the remote and the player is too far.
➡ The remote is not pointed at the remote sensor on the player.
➡ The batteries in the remote are weak.

➡continued

The disc does not play.
➡ The disc is turned over.
Insert the disc with the playback side facing down on the disc tray.
➡ The disc is skewed.
➡ The player cannot play certain discs (page 7).
➡ The region code on the DVD does not match the player.
➡ Moisture has condensed inside the player (page 3).
➡ The player cannot play a recorded disc that is not correctly finalized (page 7).

The MP3 audio track cannot be played (page 29).
➡ The DATA CD is not recorded in the MP3 format that conforms to ISO9660 Level 1/Level 2 or Joliet.
➡ The MP3 audio track does not have the extension “.MP3.”
➡ The data is not formatted in MP3 even though it has the extension “.MP3.”
➡ The data is not MPEG1 Audio Layer 3 data.
➡ The player cannot play audio tracks in MP3PRO format.

The title of the MP3 audio album or track is not correctly displayed.
➡ The player can only display numbers and alphabet. Other characters are displayed as “*”.

The disc does not start playing from the beginning.
➡ Program Play, Shuffle Play, Repeat Play, or A-B Repeat Play has been selected (page 30).
➡ Resume play has taken effect (page 26).

The player starts playing the disc automatically.
➡ The disc features an auto playback function.
➡ “AUTO PLAY” in “CUSTOM SETUP” is set to “ON” (page 56).

Playback stops automatically.
➡ While playing discs with an auto pause signal, the player stops playback at the auto pause signal.

You cannot perform some functions such as Stop, Search, Slow-motion Play, Repeat Play, Shuffle Play, or Program Play.
➡ Depending on the disc, you may not be able to do some of the operations above. See the operating manual that comes with the disc.

The language for the sound track cannot be changed.
➡ Try using the DVD’s menu instead of the direct selection button on the remote (page 27).
➡ Multilingual tracks are not recorded on the DVD being played.
➡ The DVD prohibits the changing of the language for the sound track.

The subtitle language cannot be changed or turned off.
➡ Try using the DVD’s menu instead of the direct selection button on the remote (page 27).
➡ Multilingual subtitles are not recorded on the DVD being played.
➡ The DVD prohibits the changing of the subtitles.

The angles cannot be changed.
➡ Try using the DVD’s menu instead of the direct selection button on the remote (page 27).
➡ Multi-angles are not recorded on the DVD being played.
➡ The angle can only be changed when the “🎥” indicator lights up on the front panel display (page 9).
➡ The DVD prohibits changing of the angles.

The player does not operate properly.
➡ When static electricity, etc., causes the player to operate abnormally, unplug the player.

5 numbers or letters are displayed on the screen and on the front panel display.
➡ The self-diagnosis function was activated. (See the table on page 61.)

The disc tray does not open and “LOCKED” appears on the front panel display.

➡ Child Lock is set (page 25).

The disc tray does not open and “TRAY LOCKED” appears on the front panel display.

➡ Contact your Sony dealer or local authorized Sony service facility.

“Data error” appears on the TV screen when playing a DATA CD.

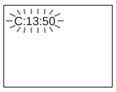
➡ The MP3 audio track you want to play is broken.

➡ The data is not MPEG 1 Audio Layer 3 data.

Self-diagnosis Function

(When letters/numbers appear in the display)

When the self-diagnosis function is activated to prevent the player from malfunctioning, a five-character service number (e.g., C 13 50) with a combination of a letter and four digits appears on the screen and the front panel display. In this case, check the following table.



First three characters of the service number	Cause and/or corrective action
C 13	The disc is dirty. ➡ Clean the disc with a soft cloth (page 7).
C 31	The disc is not inserted correctly. ➡ Re-insert the disc correctly.
E XX (xx is a number)	To prevent a malfunction, the player has performed the self-diagnosis function. ➡ Contact your nearest Sony dealer or local authorized Sony service facility and give the 5-character service number. Example: E 61 10

Glossary

Chapter (page 9)

Sections of a picture or a music feature that are smaller than titles. A title is composed of several chapters. Depending on the disc, no chapters may be recorded.

Dolby Digital (page 21, 58)

Digital audio compression technology developed by Dolby Laboratories. This technology conforms to 5.1-channel surround sound. The rear channel is stereo and there is a discrete subwoofer channel in this format. Dolby Digital provides the same 5.1 discrete channels of high quality digital audio found in Dolby Digital cinema audio systems. Good channel separation is realized because all of the channel data are recorded discretely and little deterioration is realized because all channel data processing is digital.

Dolby Surround (Pro Logic) (page 20)

Audio signal processing technology that Dolby Laboratories developed for surround sound. When the input signal contains a surround component, the Pro Logic process outputs the front, center and rear signals. The rear channel is monaural.

DTS (page 21, 58)

Digital audio compression technology that Digital Theater Systems, Inc. developed. This technology conforms to 5.1-channel surround sound. The rear channel is stereo and there is a discrete subwoofer channel in this format. DTS provides the same 5.1 discrete channels of high quality digital audio.
Good channel separation is realized because all of the channel data is recorded discretely and little deterioration is realized because all channel data processing is digital.

DVD (page 6)

A disc that contains up to 8 hours of moving pictures even though its diameter is the same as a CD.
The data capacity of a single-layer and single-sided DVD is 4.7 GB (Giga Byte), which is 7 times that of a CD. The data capacity of a double-layer and single-sided DVD is 8.5 GB, a single-layer and double-sided DVD is 9.4 GB, and double-layer and double-sided DVD is 17GB.
The picture data uses the MPEG 2 format, one of the worldwide standards of digital compression technology. The picture data is compressed to about 1/40 (average) of its original size. The DVD also uses a variable rate coding technology that changes the data to be allocated according to the status of the picture. Audio information is recorded in a multi-channel format, such as Dolby Digital, allowing you to enjoy a more real audio presence.
Furthermore, various advanced functions such as the multi-angle, multilingual, and Parental Control functions are provided with the DVD.

DVD-RW (page 6)

A DVD-RW is a recordable and rewritable disc that is the same size as a DVD VIDEO. The DVD-RW has two different modes: VR mode and Video mode. DVD-RWs created in Video mode have the same format as a DVD VIDEO, while discs created in VR (Video Recording) mode allow the contents to be programmed or edited.

DVD+RW (page 6)

A DVD+RW (plus RW) is a recordable and rewritable disc. DVD+RWs use a recording format that is comparable to the DVD VIDEO format.

Index (CD)/Video Index (VIDEO CD) (page 36)

A number that divides a track into sections to easily locate the point you want on a CD or VIDEO CD. Depending on the disc, no index may be recorded.

Scene (page 9)

On a VIDEO CD with PBC (playback control) functions, the menu screens, moving pictures and still pictures are divided into sections called “scenes.”

Title (page 9)

The longest section of a picture or music feature on a DVD, movie, etc., in video software, or the entire album in audio software.

Track (page 9)

Sections of a picture or a music feature on a CD or VIDEO CD (the length of a song).

Language Code List

For details, see pages 40, 43, 54.
The language spellings conform to the ISO 639: 1988 (E/F) standard.

Code	Language	Code	Language	Code	Language	Code	Language
1027	Afar	1183	Irish	1347	Maori	1507	Samoan
1028	Abkhazian	1186	Scots Gaelic	1349	Macedonian	1508	Shona
1032	Afrikaans	1194	Galician	1350	Malayalam	1509	Somali
1039	Amharic	1196	Guarani	1352	Mongolian	1511	Albanian
1044	Arabic	1203	Gujarati	1353	Moldavian	1512	Serbian
1045	Assamese	1209	Hausa	1356	Marathi	1513	Siswati
1051	Aymara	1217	Hindi	1357	Malay	1514	Sesotho
1052	Azerbaijani	1226	Croatian	1358	Maltese	1515	Sundanese
1053	Bashkir	1229	Hungarian	1363	Burmese	1516	Swedish
1057	Byelorussian	1233	Armenian	1365	Nauru	1517	Swahili
1059	Bulgarian	1235	Interlingua	1369	Nepali	1521	Tamil
1060	Bihari	1239	Interlingue	1376	Dutch	1525	Telugu
1061	Bislama	1245	Inupiak	1379	Norwegian	1527	Tajik
1066	Bengali; Bangla	1248	Indonesian	1393	Occitan	1528	Thai
		1253	Icelandic	1403	(Afan)Oromo	1529	Tigrinya
1067	Tibetan	1254	Italian	1408	Oriya	1531	Turkmen
1070	Breton	1257	Hebrew	1417	Punjabi	1532	Tagalog
1079	Catalan	1261	Japanese	1428	Polish	1534	Setswana
1093	Corsican	1269	Yiddish	1435	Pashto; Pushto	1535	Tonga
1097	Czech	1283	Javanese			1538	Turkish
1103	Welsh	1287	Georgian	1436	Portuguese	1539	Tsonga
1105	Danish	1297	Kazakh	1463	Quechua	1540	Tatar
1109	German	1298	Greenlandic	1481	Rhaeto-Romance	1543	Twi
1130	Bhutani	1299	Cambodian			1557	Ukrainian
1142	Greek	1300	Kannada	1482	Kirundi	1564	Urdu
1144	English	1301	Korean	1483	Romanian	1572	Uzbek
1145	Esperanto	1305	Kashmiri	1489	Russian	1581	Vietnamese
1149	Spanish	1307	Kurdish	1491	Kinyarwanda	1587	Volapük
1150	Estonian	1311	Kirghiz	1495	Sanskrit	1613	Wolof
1151	Basque	1313	Latin	1498	Sindhi	1632	Xhosa
1157	Persian	1326	Lingala	1501	Sangho	1665	Yoruba
1165	Finnish	1327	Laothian	1502	Serbo-Croatian	1684	Chinese
1166	Fiji	1332	Lithuanian			1697	Zulu
1171	Faroese	1334	Latvian; Lettish	1503	Singhalese		
1174	French			1505	Slovak		
1181	Frisian	1345	Malagasy	1506	Slovenian	1703	Not specified

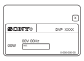
SECTION 1-2
GENERAL
(NS725P/NS730P)

This section is extracted from instruction manual

Precautions

- The power requirements and power consumption of this player are indicated on the back of the player. Check that the player's operating voltage is identical with your local power supply.

Power requirements and power consumption →



On safety

- Caution – The use of optical instruments with this product will increase eye hazard.
- To prevent fire or shock hazard, do not place objects filled with liquids, such as vases, on the apparatus.
- Should any solid object or liquid fall into the cabinet, unplug the player and have it checked by qualified personnel before operating it any further.

On power sources

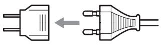
- The player is not disconnected from the AC power source as long as it is connected to the wall outlet, even if the player itself has been turned off.
- If you are not going to use the player for a long time, be sure to disconnect the player from the wall outlet. To disconnect the AC power cord, grasp the plug itself; never pull the cord.
- Should the AC power cord need to be changed, have it done at a qualified service shop only.

On placement

- Place the player in a location with adequate ventilation to prevent heat build-up in the player.
- Do not place the player on a soft surface such as a rug that might block the ventilation holes.
- Do not place the player in a location near heat sources, or in a place subject to direct sunlight, excessive dust, or mechanical shock.

For the model supplied with the AC plug adaptor

If the AC plug of your unit does not fit into the wall outlet, attach the supplied AC plug adaptor.



On operation

- If the player is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lenses inside the player. Should this occur, the player may not operate properly. In this case, remove the disc and leave the player turned on for about half an hour until the moisture evaporates.
- When you move the player, take out any discs. If you don't, the disc may be damaged.

On adjusting volume

Do not turn up the volume while listening to a section with very low level inputs or no audio signals. If you do, the speakers may be damaged when a peak level section is played.

On cleaning

Clean the cabinet, panel, and controls with a soft cloth slightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine.

On cleaning discs

Do not use a commercially available cleaning disc. It may cause a malfunction.

IMPORTANT NOTICE

Caution: This player is capable of holding a still video image or on-screen display image on your television screen indefinitely. If you leave the still video image or on-screen display image displayed on your TV for an extended period of time you risk permanent damage to your television screen. Plasma Display Panel televisions and projection televisions are susceptible to this.

If you have any questions or problems concerning your player, please consult your nearest Sony dealer.

About this Manual

- Instructions in this manual describe the controls on the remote. You can also use the controls on the player if they have the same or similar names as those on the remote.
- The meaning of the icons used in this manual is described below:

Icon	Meaning
DVD	Functions available for DVD VIDEOs and DVD-RWs/DVD-Rs in video mode or DVD+RWs/DVD+Rs
VCD	Functions available for VIDEO CDs, Super VCDs, or CD-Rs/CD-RWs in video CD format or Super VCD format
DATA CD	Functions available for DATA CDs (CD-ROMs/CD-Rs/CD-RWs containing MP3* audio tracks)
CD	Functions available for music CDs or CD-Rs/CD-RWs in music CD format

* MP3 (MPEG 1 Audio Layer 3) is a standard format defined by ISO/MPEG which compresses audio data.

This Player Can Play the Following Discs

Format of discs	
DVD VIDEO (page 67)	DVD VIDEO
VIDEO CD	COMPACT disc DIGITAL VIDEO
Music CD	COMPACT disc DIGITAL AUDIO

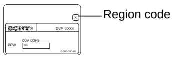
The "DVD VIDEO" logo is a trademark.

Region code

Your player has a region code printed on the back of the unit and only will play DVD VIDEO discs (playback only) labeled with identical region codes. This system is used to protect copyrights.

DVDs labeled ALL will also play on this player.

If you try to play any other DVD, the message "Playback prohibited by area limitations." will appear on the TV screen. Depending on the DVD, no region code indication may be labeled even though playing the DVD is prohibited by area restrictions.



Example of discs that the player cannot play

The player cannot play the following discs:
- All CD-ROMs (including PHOTO CDs)/CD-Rs/CD-RWs other than those recorded in the following formats:
  –music CD format
  –video CD format
  –MP3 format that conforms to ISO9660* Level 1/Level 2, or its extended format, Joliet
- Data part of CD-Extras
- DVD-RWs in VR mode
- DVD-ROMs
- DVD Audio discs
- HD layer on Super Audio CDs

* A logical format of files and folders on CD-ROMs, defined by ISO (International Standard Organization).

Also, the player cannot play the following discs:
- A DVD with a different region code.
- A disc recorded in a color system other than NTSC, such as PAL or SECAM (this player conforms to the NTSC color system).
- A disc that has a non-standard shape (e.g., card, heart).
- A disc with paper or stickers on it.
- A disc that has the adhesive of cellophane tape or a sticker still left on it.

Notes

- **Notes about DVD-RWs/DVD-Rs, DVD+RWs/DVD+Rs or CD-Rs/CD-RWs**
  Some DVD-RWs/DVD-Rs, DVD+RWs/DVD+Rs, or CD-Rs/CD-RWs cannot be played on this player due to the recording quality or physical condition of the disc, or the characteristics of the recording device and authoring software.
  The disc will not play if it has not been correctly finalized. For more information, see the operating instructions for the recording device. Note that discs created in the Packet Write format cannot be played.
- **Music discs encoded with copyright protection technologies**
  This product is designed to playback discs that conform to the Compact Disc (CD) standard. Recently, various music discs encoded with copyright protection technologies are marketed by some record companies. Please be aware that among those discs, there are some that do not conform to the CD standard and may not be playable by this product.

Note on playback operations of DVDs and VIDEO CDs

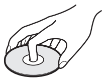
Some playback operations of DVDs and VIDEO CDs may be intentionally set by software producers. Since this player plays DVDs and VIDEO CDs according to the disc contents the software producers designed, some playback features may not be available. Also, refer to the instructions supplied with the DVDs or VIDEO CDs.

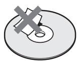
Copyrights

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents, other intellectual property rights owned by Macrovision Corporation, and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

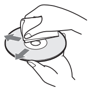
Notes about the Discs

- To keep the disc clean, handle the disc by its edge. Do not touch the surface.





- Do not expose the disc to direct sunlight or heat sources such as hot air ducts, or leave it in a car parked in direct sunlight as the temperature may rise considerably inside the car.
- After playing, store the disc in its case.
- Clean the disc with a cleaning cloth. Wipe the disc from the center out.

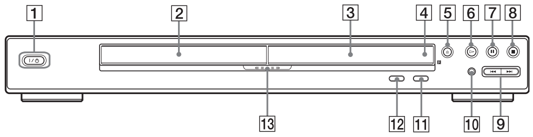


- Do not use solvents such as benzine, thinner, commercially available cleaners, or anti-static spray intended for vinyl LPs.

Index to Parts and Controls

For more information, refer to the pages indicated in parentheses.

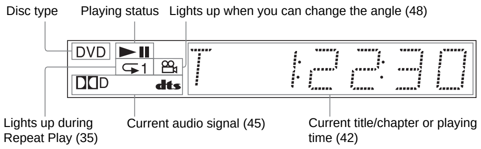
Front panel



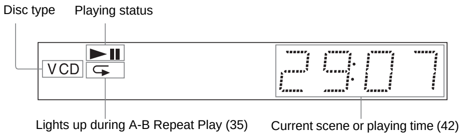
1 I/⏻ (on/standby) button (26)
2 Disc tray (26)
3 Front panel display (9)
4 R (remote sensor) (15)
5 ⏏ (open/close) button (26)
6 ▷ (play) button (26)
7 ❚❚ (pause) button (27)
8 ■ (stop) button (27)
9 ⏮/⏭ (previous/next) buttons (37)
10 PROGRESSIVE button (18, 24)
11 SURROUND button (46)
12 PICTURE MODE button (50)
13 PROGRESSIVE indicator (17)
Lights up when the player outputs progressive signals.

Front panel display

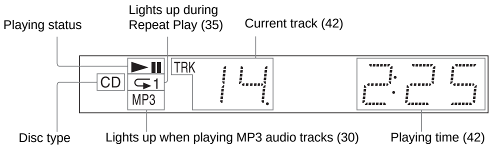
When playing back a DVD


Disc type
Playing status
Lights up when you can change the angle (48)
DVD
1
dts
T 1:22:30
Lights up during Repeat Play (35)
Current audio signal (45)
Current title/chapter or playing time (42)

When playing back a VIDEO CD with Playback Control (PBC) (29)

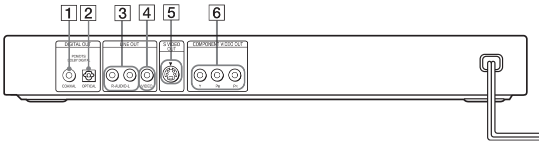

Disc type
Playing status
VCD
29:07
Lights up during A-B Repeat Play (35)
Current scene or playing time (42)

When playing back a CD, DATA CD (MP3 audio), or VIDEO CD (without PBC)


Playing status
Lights up during Repeat Play (35)
Current track (42)
CD
1
MP3
TRK
14
2:25
Disc type
Lights up when playing MP3 audio tracks (30)
Playing time (42)

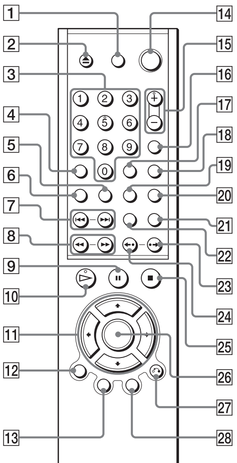
➡continued

Rear panel



1. DIGITAL OUT (COAXIAL) jack (21) (22) (23)
2. DIGITAL OUT (OPTICAL) jack (21) (22) (23)
3. LINE OUT L/R (AUDIO) jack (20) (21) (22)
4. LINE OUT (VIDEO) jack (16)
5. S VIDEO OUT jack (16)
6. COMPONENT VIDEO OUT jacks (16)

Remote


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

1. TV I/⏻ (on/standby) button (57)
2. ⏏ OPEN/CLOSE button (26)
3. Number buttons (29)
   The number 5 button has a tactile dot.*
4. CLEAR button (32)
5. SUBTITLE button (48)
6. AUDIO button (45)
7. ⏮/⏭ PREV/NEXT (previous/next) buttons (27)
8. ◄▮ ◄◄/►► ▮► SCAN/SLOW buttons (37)
9. ❚❚ PAUSE button (27)
10. ▷ PLAY button (26)
    The ▷ button has a tactile dot.*
11. ←/↑/↓/→ buttons (29)
12. DISPLAY button (12)
13. TOP MENU button (29)
14. I/⏻ (on/standby) button (26)
15. VOL (volume) +/– buttons (57)
    The + button has a tactile dot.*
16. TV/VIDEO button (57)
17. TIME/TEXT button (41)
18. PICTURE MODE button (50)
19. ANGLE button (48)
20. SUR (surround) button (46)
21. PICTURE NAVI (picture navigation) button (40)
22. REPEAT button (35)
23. •➡/❙❙► INSTANT SEARCH/STEP button (27, 37)
24. ⬅•/◄❙❙ INSTANT REPLAY/STEP button (27, 37)
25. ■ STOP button (27)
26. ENTER button (27)
27. ↶ RETURN button (27)
28. MENU button (29) (30)

* Use the tactile dot as a reference when operating the player.

Guide to the Control Menu Display

Use the Control Menu to select a function and to view related information. Press DISPLAY repeatedly to turn on or change the Control Menu display as follows:

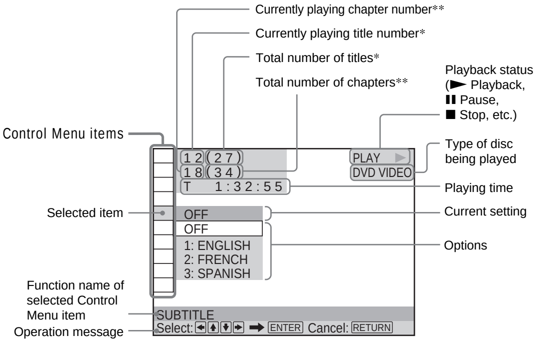
Control Menu display 1
↓
Control Menu display 2 (DVD/VIDEO CD only)
↓
ADVANCED display (DVD only. See page 43.)
↓
Control Menu display off

Hint
You can skip the ADVANCED display by setting "OFF" under "ADVANCED" in the Control Menu (page 43).

Control Menu Display

The Control Menu display 1 and 2 will show different items depending on the disc type. For details about each item, please refer to the pages in the parentheses.

Example: Control Menu display 1 when playing a DVD.


Currently playing chapter number**
Currently playing title number*
Total number of titles*
Total number of chapters**
Playback status (► Playback, ❚❚ Pause, ■ Stop, etc.)
Control Menu items
Type of disc being played
1 2 (2 7)
1 8 (3 4)
T 1 : 3 2 : 5 5
PLAY ►
DVD VIDEO
Playing time
Selected item
Current setting
OFF
OFF
1: ENGLISH
2: FRENCH
3: SPANISH
Options
Function name of selected Control Menu item
Operation message
SUBTITLE
Select: ← ↑ ↓ → ➡ ENTER Cancel: RETURN

* Displays the scene number for VIDEO CDs (PBC is on), track number for VIDEO CDs/CDs, album number for DATA CDs.

** Displays the index number for VIDEO CDs/CDs, MP3 audio track number for DATA CDs.

List of Control Menu Items

Item	Item Name, Function, Relevant Disc Type
	TITLE (page 38)/SCENE (page 38)/TRACK (page 38) Selects the title, scene, or track to be played. DVD VCD
	CHAPTER (page 38)/INDEX (page 38) Selects the chapter or index to be played. DVD VCD
	ALBUM (page 30) Selects the album to be played. DATA CD
	TRACK (page 38) Selects the track to be played. CD DATA CD
	INDEX (page 38) Selects the index to be played. CD
	TIME/TEXT (page 38) Checks the elapsed time and the remaining playback time. Input the time code for picture and music searching. Displays the DVD/CD text or the DATA CD's track name. DVD VCD CD DATA CD
	AUDIO (page 45) Changes the audio setting. DVD VCD CD DATA CD
	SUBTITLE (page 48) Displays the subtitles. Changes the subtitle language. DVD
	ANGLE (page 48) Changes the angle. DVD
	TVS (TV Virtual Surround) (page 46) Selects the surround functions. DVD
	ADVANCED (page 43) Displays the information (bit rate or layer) of the disc currently playing. DVD
	PARENTAL CONTROL (page 53) Set to prohibit playback on this player. DVD VCD CD
	SETUP (page 58) QUICK Setup (page 24) Use Quick Setup to choose the desired language of the on-screen display, the aspect ratio of the TV and the audio output signal. CUSTOM Setup In addition to the Quick Setup setting, you can adjust other various settings. RESET Returns the settings in "SETUP" to the default setting. DVD VCD CD DATA CD
	PROGRAM (page 32) Selects the title, chapter, or track to play in the order you want. DVD VCD CD
	SHUFFLE (page 34) Plays the title, chapter, or track in random order. DVD VCD CD

➡continued

	REPEAT (page 35) Plays the entire disc (all titles/all tracks/all albums) repeatedly or one title/chapter/track/album repeatedly. DVD VCD CD DATA CD
	A-B REPEAT (page 35) Specifies the parts you want to play repeatedly. DVD VCD CD
	BNR (page 49) Adjusts the picture quality by reducing the "block noise" or mosaic like patterns that appear on your TV screen. DVD VCD
	CUSTOM PICTURE MODE (page 50) Adjusts the video signal from the player. You can select the picture quality that best suits the program you are watching. DVD VCD
	DIGITAL VIDEO ENHANCER (page 51) Exaggerates the outline of the image to produce a sharper picture. DVD VCD
	PICTURE NAVIGATION (page 40) Divides the screen into 9 subscreens to help you find the scene you want quickly. DVD VCD

Hint

The Control Menu icon indicator lights up in green → when you select any item except "OFF." ("TVS," "PROGRAM," "SHUFFLE," "REPEAT," "A-B REPEAT," "BNR," "DIGITAL VIDEO ENHANCER" only). The "ANGLE" indicator lights up in green only when the angles can be changed. The "CUSTOM PICTURE MODE" indicator lights up in green when any setting other than "STANDARD" is selected.

Hooking Up the Player

Follow Steps 1 to 6 to hook up and adjust the settings of the player.

Notes

Plug cords securely to prevent unwanted noise.
Refer to the instructions supplied with the components to be connected.
You cannot connect this player to a TV that does not have a video input jack.
Be sure to disconnect the power cord of each component before connecting.

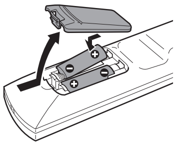
Step 1: Unpacking

Check that you have the following items:

Audio/video cord (pinplug · 3 ←→ pinplug · 3) (1)
Remote commander (remote) (1)
Size AA (R6) batteries (2)
A plug adapter is induded with some models.

Step 2: Inserting Batteries into the Remote

You can control the player using the supplied remote. Insert two Size AA (R6) batteries by matching the ⊕ and ⊖ ends on the batteries to the markings inside the compartment. When using the remote, point it at the remote sensor on the player.

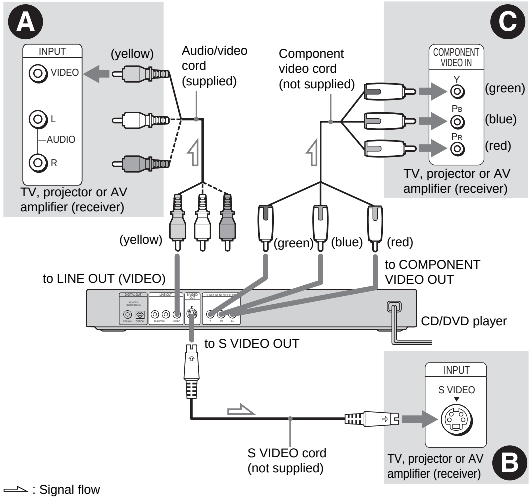


Notes

Do not leave the remote in an extremely hot or humid place.
Do not drop any foreign object into the remote casing, particularly when replacing the batteries.
Do not expose the remote sensor to direct light from the sun or a lighting apparatus. Doing so may cause a malfunction.
If you do not use the remote for an extended period of time, remove the batteries to avoid possible damage from battery leakage and corrosion.

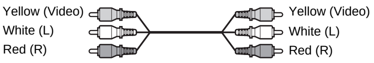
Step 3: Connecting the Video Cords

Connect this player to your TV monitor, projector, or AV amplifier (receiver) using a video cord. Select one of the patterns Ⓐ through Ⓒ. In order to view progressive signal (480p) pictures with a compatible TV, projector, or monitor, you must use connection Ⓒ, according to the input jack on your TV monitor, projector, or AV amplifier (receiver).


A
INPUT
VIDEO
L
AUDIO
R
TV, projector or AV amplifier (receiver)
(yellow)
Audio/video cord (supplied)
Component video cord (not supplied)
C
COMPONENT VIDEO IN
Y
PB
PR
(green)
(blue)
(red)
TV, projector or AV amplifier (receiver)
(yellow)
(green)
(blue)
(red)
to LINE OUT (VIDEO)
to COMPONENT VIDEO OUT
CD/DVD player
to S VIDEO OUT
INPUT
S VIDEO
S VIDEO cord (not supplied)
TV, projector or AV amplifier (receiver)
B
: Signal flow

Ⓐ If you are connecting to a video input jack

Connect the yellow plug of the audio/video cord (supplied) to the yellow (video) jacks. You will enjoy standard quality images.



Use the red and white plugs to connect to the audio input jacks (page 20). (Do this if you are connecting to a TV only.)

Ⓑ If you are connecting to an S VIDEO input jack

Connect an S VIDEO cord (not supplied). You will enjoy high quality images.

Ⓒ If you are connecting to a monitor, projector, or AV amplifier (receiver) having component video input jacks (Y, P_B, P_R)

Connect the component via the COMPONENT VIDEO OUT jacks using a component video cord (not supplied) or three video cords (not supplied) of the same kind and length. You will enjoy accurate color reproduction and high quality images. If your TV accepts progressive (480p) format signals, you must use this connection and then press PROGRESSIVE on the front panel to accept progressive video signals. The PROGRESSIVE indicator lights up in blue when the player outputs progressive signals. See “Using the PROGRESSIVE button” on the next page for more information.

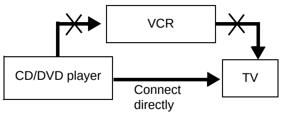
Green
Blue
Red
Green
Blue
Red

When connecting to a wide screen TV

Depending on the disc, the image may not fit your TV screen. If you want to change the aspect ratio, please refer to page 60.

Notes

- Do not connect the player to a VCR. If you pass the player signals via the VCR, you may not receive a clear image on the TV screen.



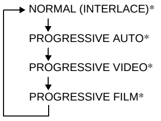
- Consumers should note that not all high definition television sets are fully compatible with this product and may cause artifacts to be displayed in the picture. In the case of 480 progressive scan picture problems, it is recommended that you switch the connection to the standard definition output. If there are questions regarding your Sony TV set’s compatibility with this model 480p DVD player, please contact our customer service center.

Using the PROGRESSIVE button

You can fine-tune the Progressive 480p video signal output when you press PROGRESSIVE on the front panel (the PROGRESSIVE indicator lights up in blue) and connect the player using the COMPONENT VIDEO OUT jacks to a TV that is able to accept the video signal in progressive format.

◆ Conversion Modes

DVD software can be divided into two types: film based software and video based software. Video based software is derived from the TV, such as dramas and sit-coms, and displays images at 30 frames/60 fields per second. Film based software is derived from film and displays images at 24 frames per second. Some DVD software contains both Video and Film.
In order for these images to appear natural on your screen when output in PROGRESSIVE mode (60 frames per second), the progressive video signal needs to be converted to match the type of DVD software that you are watching.
Press PROGRESSIVE repeatedly to turn or change the displays as follows:



* Appears as NORMAL, P AUTO, P VIDEO, or P FILM on the front panel display

- NORMAL (INTERLACE)
  Select this when you are connected to a standard (Interlace format) TV.

- PROGRESSIVE AUTO
  Select this when you are connected to a progressive TV. This will automatically detect if you are playing Film based or Video based software and convert the signal to the appropriate conversion mode. Normally select this position when you are connected to a progressive TV.

- PROGRESSIVE VIDEO
  Select this when you are connected to a progressive TV. This will set the conversion mode for Video based software, regardless of the type of software that you are playing.

- PROGRESSIVE FILM
  Select this when you are connected to a progressive TV. This will set the conversion mode for Film based software, regardless of the type of software that you are playing.

Notes

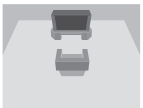
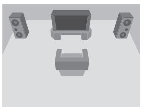
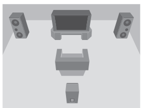
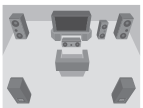
- When you select PROGRESSIVE FILM, the progressive format images may become unclear or unnatural. If this happens, select PROGRESSIVE VIDEO.
- When you play video based software with progressive signals, sections of some types of images may appear unnatural due to the conversion process when output through the COMPONENT VIDEO OUT jacks. Images from the S VIDEO OUT and LINE OUT (VIDEO) jacks are unaffected as they are output in the normal (interlace) format.

Step 4: Connecting the Audio Cords

Refer to the chart below to select the connection that best suits your system. Be sure to also read the instructions for the components you wish to connect.

Select a connection

Select one of the following connections, A through D.

Components to be connected	Connection	Your setup (example)
TV • Surround effects: TVS DYNAMIC (page 46), TVS WIDE (page 46)	A (page 20)	
Stereo amplifier (receiver) and two speakers • Surround effects: TVS STANDARD (page 46) or **MD deck/DAT deck** • Surround effects: TVS STANDARD (page 46).	B (page 21)	
AV amplifier (receiver) having a Dolby* Surround (Pro Logic) decoder and 3 to 6 speakers • Surround effects: Dolby Surround (Pro Logic) (page 67)	C (page 22)	
AV amplifier (receiver) with digital input jacks having a Dolby Digital or DTS decoder and 6 speakers** • Surround effects: – Dolby Digital (5.1ch) (page 67) – DTS (5.1ch) (page 67)	D (page 23)	

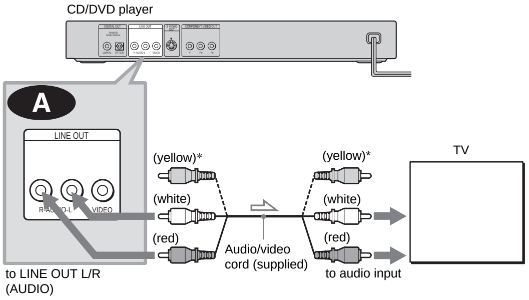
* Manufactured under license from Dolby Laboratories. “Dolby,” “Pro Logic,” and the double-D symbol are trademarks of Dolby Laboratories.

** “DTS” and “DTS Digital Out” are trademarks of Digital Theater Systems, Inc.

➡continued

A Connecting to your TV

This connection will use your TV speakers for sound.



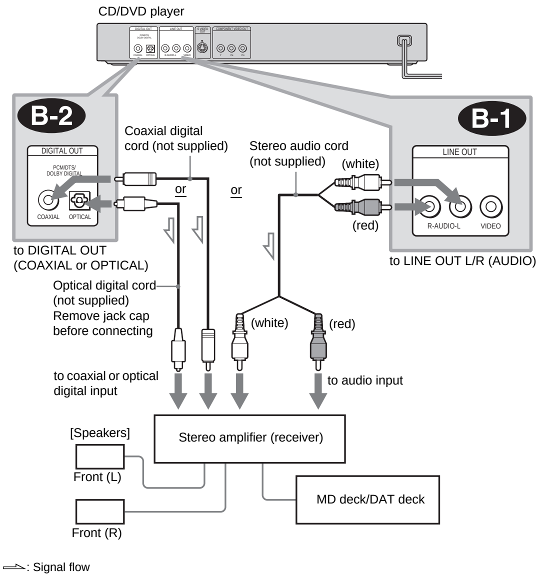
⇨ : Signal flow

* The yellow plug is used for video signals (page 16).

Hint
When connecting to a monaural TV, use a stereo-mono conversion cord (not supplied). Connect the LINE OUT L/R (AUDIO) jacks to the TV’s audio input jack.

B Connecting to a stereo amplifier (receiver) and 2 speakers/Connecting to an MD deck or DAT deck

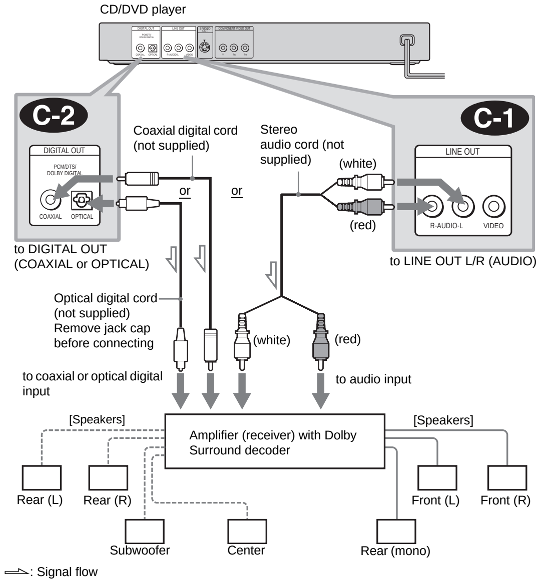
If the stereo amplifier (receiver) has audio input jacks L and R only, use B-1. If the amplifier (receiver) has a digital input jack, or when connecting to an MD deck or DAT deck, use B-2. In this case, you can also connect the player directly to the MD deck or DAT deck without using your stereo amplifier (receiver).


CD/DVD player
B-2
B-1
DIGITAL OUT
PCM/DTS/DOLBY DIGITAL
COAXIAL
OPTICAL
Coaxial digital cord (not supplied)
Stereo audio cord (not supplied)
(white)
(red)
or
or
LINE OUT
R-AUDIO-L
VIDEO
to DIGITAL OUT (COAXIAL or OPTICAL)
to LINE OUT L/R (AUDIO)
Optical digital cord (not supplied) Remove jack cap before connecting
(white)
(red)
to coaxial or optical digital input
to audio input
[Speakers]
Stereo amplifier (receiver)
Front (L)
Front (R)
MD deck/DAT deck
: Signal flow

➡continued

C Connecting to an AV amplifier (receiver) having a Dolby Surround (Pro Logic) decoder and 3 to 6 speakers

You can enjoy the Dolby Surround effects only when playing Dolby Surround audio or multi-channel audio (Dolby Digital) discs.
If your amplifier (receiver) has L and R audio input jacks only, use C-1. If your amplifier (receiver) has a digital input jack, use C-2.

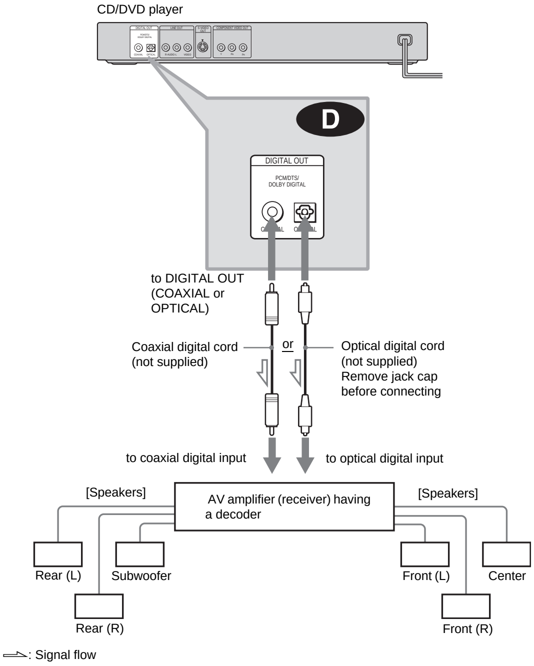

CD/DVD player
C-2
C-1
DIGITAL OUT
PCM/DTS/DOLBY DIGITAL
COAXIAL
OPTICAL
Coaxial digital cord (not supplied)
Stereo audio cord (not supplied)
(white)
(red)
or
or
LINE OUT
R-AUDIO-L
VIDEO
to DIGITAL OUT (COAXIAL or OPTICAL)
to LINE OUT L/R (AUDIO)
Optical digital cord (not supplied) Remove jack cap before connecting
(white)
(red)
to coaxial or optical digital input
to audio input
[Speakers]
[Speakers]
Amplifier (receiver) with Dolby Surround decoder
Rear (L)
Rear (R)
Front (L)
Front (R)
Subwoofer
Center
Rear (mono)
: Signal flow

Note

When connecting 6 speakers, replace the monaural rear speaker with a center speaker, 2 rear speakers and a subwoofer.

D Connecting to an AV amplifier (receiver) with a digital input jack having a Dolby Digital or DTS decoder and 6 speakers

This connection will allow you to use the Dolby Digital or DTS decoder function of your AV amplifier (receiver).


CD/DVD player
D
DIGITAL OUT
PCM/DTS/DOLBY DIGITAL
COAXIAL
OPTICAL
to DIGITAL OUT (COAXIAL or OPTICAL)
Coaxial digital cord (not supplied)
or
Optical digital cord (not supplied) Remove jack cap before connecting
to coaxial digital input
to optical digital input
[Speakers]
[Speakers]
AV amplifier (receiver) having a decoder
Rear (L)
Subwoofer
Front (L)
Center
Rear (R)
Front (R)
: Signal flow

Note

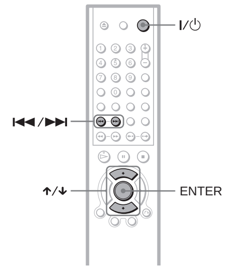
After you have completed the connection, be sure to set “DOLBY DIGITAL” to “DOLBY DIGITAL” and “DTS” to “ON” in Quick Setup (page 24).

Step 5: Connecting the Power Cord

Plug the player and TV power cords into an AC outlet.

Step 6: Quick Setup

Follow the steps below to make the minimum number of basic adjustments for using the player. To skip an adjustment, press ⏭. To return to the previous adjustment, press ⏮.



1 Turn on the TV.

2 Press I/⏻.

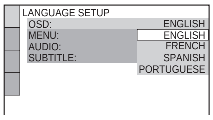
Press PROGRESSIVE on the front panel only if you have made video connection Ⓒ (page 16) and wish to view progressive video signals. The PROGRESSIVE indicator lights up in blue when the player outputs progressive signals.

3 Switch the input selector on your TV so that the signal from the player appears on the TV screen.

“Press [ENTER] to run QUICK SETUP” appears at the bottom of the screen. If this message does not appear, select “QUICK” under “SETUP” in the Control Menu to run Quick Setup (page 59).

4 Press ENTER without inserting a disc.

The Setup Display for selecting the language used in the on-screen display appears.



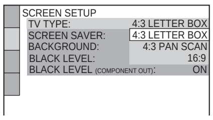
LANGUAGE SETUP
OSD: ENGLISH
MENU: ENGLISH
AUDIO: FRENCH
SUBTITLE: SPANISH
PORTUGUESE

5 Press ↑/↓ to select a language.

The player uses the language selected here to display the menu and subtitles as well.

6 Press ENTER.

The Setup Display for selecting the aspect ratio of the TV to be connected appears.



SCREEN SETUP
TV TYPE: 4:3 LETTER BOX
SCREEN SAVER: 4:3 LETTER BOX
BACKGROUND: 4:3 PAN SCAN
BLACK LEVEL: 16:9
BLACK LEVEL (COMPONENT OUT): ON

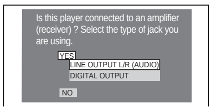
7 Press ↑/↓ to select the setting that matches your TV type.

◆ **If you have a 4:3 standard TV**
- 4:3 LETTER BOX or 4:3 PAN SCAN (page 60)

◆ **If you have a wide-screen TV or a 4:3 standard TV with a wide-screen mode**
- 16:9 (page 60)

8 Press ENTER.

The Setup Display for selecting the type of jack used to connect your amplifier (receiver) appears.



Is this player connected to an amplifier (receiver) ? Select the type of jack you are using.
YES
LINE OUTPUT L/R (AUDIO)
DIGITAL OUTPUT
NO

9 Press ↑/↓ to select the type of jack (if any) you are using to connect to an amplifier (receiver), then press ENTER.

Choose the item that matches the audio connection you selected on pages 20 to 23 (**A** through **D**).

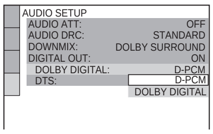
A
- If you connect just a TV and nothing else, select "NO." Quick Setup is finished and connections are complete.

B-1 **C-1**
- Select "LINE OUTPUT L/R (AUDIO)." Quick Setup is finished and connections are complete.

B-2 **C-2** **D**
- Select "DIGITAL OUTPUT." The Setup Display for "DOLBY DIGITAL" appears.

10 Press ↑/↓ to select the type of Dolby Digital signal you wish to send to your amplifier (receiver).

Choose the signal that matches the audio connection you selected on pages 21 to 23 (**B** through **D**).



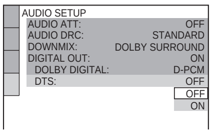
AUDIO SETUP
AUDIO ATT: OFF
AUDIO DRC: STANDARD
DOWNMIX: DOLBY SURROUND
DIGITAL OUT: ON
DOLBY DIGITAL: D-PCM
DTS: D-PCM
DOLBY DIGITAL

B-2 **C-2**
- D-PCM (page 63)

D
- DOLBY DIGITAL (only if the amplifier (receiver) has a Dolby Digital decoder) (page 63)

11 Press ENTER.

"DTS" is selected.



AUDIO SETUP
AUDIO ATT: OFF
AUDIO DRC: STANDARD
DOWNMIX: DOLBY SURROUND
DIGITAL OUT: ON
DOLBY DIGITAL: D-PCM
DTS: OFF
OFF
ON

12 Press ↑/↓ to select whether or not you wish to send a DTS signal to your amplifier (receiver).

Choose the item that matches the audio connection you selected on pages 21 to 23 (**B** through **D**).

B-2 **C-2**
- OFF (page 63)

D
- ON (only if the amplifier (receiver) has a DTS decoder) (page 63)

13 Press ENTER.

Quick Setup is finished. All connections and setup operations are complete.

Enjoying the surround sound effects

To enjoy the surround sound effects of this player or your amplifier (receiver), set the following items as described below for the audio connection you selected on pages 21 to 23 (**B** through **D**). Each of these is the default setting and does not need to be adjusted when you first connect the player. Refer to page 58 for using the Setup Display.

Audio Connection (pages 20 to 23)

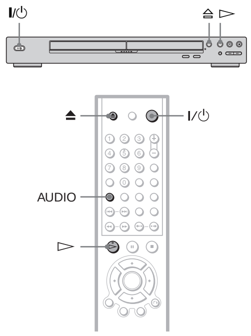
A
- No additional settings are needed.

B-1 **C-1**
- Set "DOWNMIX" to "DOLBY SURROUND" (page 63)
- If the sound distorts even when the volume is turned down, set "AUDIO ATT" to "ON" (page 62)

B-2 **C-2** **D**
- Set "DOWNMIX" to "DOLBY SURROUND" (page 63)
- Set "DIGITAL OUT" to "ON" (page 63)

Playing Discs DVD VCD CD DATA CD

Depending on the DVD or VIDEO CD, some operations may be different or restricted. Refer to the operating instructions supplied with your disc.



1 Turn on your TV.

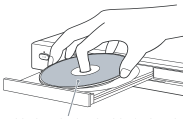
2 Press I/⏻.

The player turns on.

3 Switch the input selector on your TV so that the signal from the player appears on the TV screen.

◆ **When using an amplifier (receiver)**
Turn on the amplifier (receiver) and select the appropriate channel so that you can hear sound from the player.

4 Press ≜ on the player, and place a disc on the disc tray.



With the playback side facing down

5 Press ▷.

The disc tray closes, and the player starts playback (continuous play). Adjust the volume on the TV or the amplifier (receiver).
Depending on the disc, a menu may appear on the TV screen. For DVDs, see page 29. For VIDEO CDs, see page 29.

To turn off the player

Press I/⏻. The player enters standby mode.

Hint
You can have the player turn off automatically whenever you leave it in stop mode for more than 30 minutes. To turn on this function, set "AUTO POWER OFF" in "CUSTOM SETUP" to "ON" (page 61).

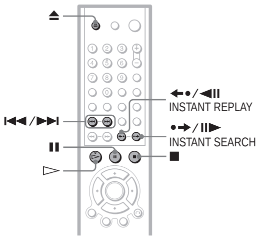
Notes on playing DTS sound tracks on a CD

- When playing DTS-encoded CDs, excessive noise will be heard from the analog stereo jacks. To avoid possible damage to the audio system, the consumer should take proper precautions when the analog stereo jacks of the player are connected to an amplification system. To enjoy DTS Digital Surround™ playback, an external 5.1-channel decoder system must be connected to the digital jack of the player.
- Set the sound to "STEREO" using the AUDIO button when you play DTS sound tracks on a CD (page 45).
- Do not play DTS sound tracks without first connecting the player to an audio component having a built-in DTS decoder. The player outputs the DTS signal via the DIGITAL OUT (COAXIAL or OPTICAL) jack even if "DTS" in "AUDIO SETUP" is set to "OFF" in the Setup Display (page 63), and may affect your ears or cause your speakers to be damaged.

Notes on playing DTS sound tracks on a DVD

- DTS audio signals are output only through the DIGITAL OUT (COAXIAL or OPTICAL) jack.
- When you play a DVD with DTS sound tracks, set "DTS" to "ON" in "AUDIO SETUP" (page 63).
- If you connect the player to audio equipment without a DTS decoder, do not set "DTS" to "ON" in "AUDIO SETUP" (page 63). A loud noise may come out from the speakers, affecting your ears or causing the speakers to be damaged.

Additional operations



To	Operation
Stop	Press ■
Pause	Press II
Resume play after pause	Press II or ▷
Go to the next chapter, track, or scene in continuous play mode	Press ▶▶I
Go back to the previous chapter, track, or scene in continuous play mode	Press I◀◀
Stop play and remove the disc	Press ≜
Replay the previous scene*	Press ←•/◀II INSTANT REPLAY during playback
Briefly fast forward the current scene**	Press •→/II▶ INSTANT SEARCH during playback

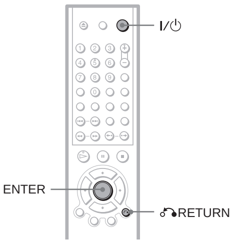
* For DVD VIDEOs and the DVD-RWs/DVD-Rs only
**For DVD VIDEOs and the DVD-RWs/DVD-Rs or DVD+RWs only

Hints
- The Instant Replay function is useful when you want to review a scene or dialog that you missed.
- The Instant Search function is useful when you want to pass over a scene that you don't want to watch.

Note
You may not be able to use the Instant Replay or Instant Search function with some scenes.

Locking the disc tray (Child Lock)

You can lock the disc tray to prevent children from opening it.



When the player is in standby mode, press ↶ RETURN, ENTER, and then I/⏻ on the remote.

The player turns on and "LOCKED" appears on the front panel display.
The ≜ button on the player or the remote does not work while the Child Lock is set.

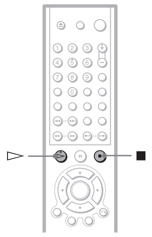
To unlock the disc tray

When the player is in standby mode, press ↶ RETURN, ENTER, and then I/⏻ again.

Note
Even if you select "RESET" under "SETUP" in the Control Menu (page 59), the disc tray remains locked.

Resuming Playback from the Point Where You Stopped the Disc (Multi-disc Resume) DVD VCD

The player stores the point where you stopped the disc for up to 6 discs and resumes playback the next time you insert the same disc. When you store a resume playback point for the seventh disc, the resume playback point for the first disc is deleted.



1 While playing a disc, press ■ to stop playback.

"RESUME" appears on the front panel display.

2 Press ▷.

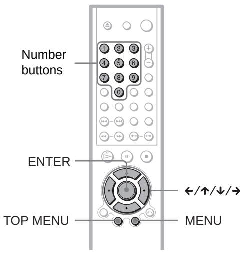
The player starts playback from the point where you stopped the disc in Step 1.

Hints
- To play from the beginning of the disc, press ■ twice, then press ▷.
- For CDs and DATA CDs, the player remembers the resume playback point for the current disc unless the disc tray is opened, the power cord is disconnected, or only for DATA CDs, the player enters standby mode.

Notes
- "MULTI-DISC RESUME" in "CUSTOM SETUP" must be set to "ON" (default) for this function to work (page 62).
- The resume playback point for the current disc is cleared when:
  - you change the play mode.
  - you change the settings on the Setup Display.
- This function may not work with some discs.
- Resume Play does not work during Shuffle Play and Program Play.
- If "MULTI-DISC RESUME" in "CUSTOM SETUP" is set to "ON" and you playback a recorded disc such as DVD-RW, the player may playback other recorded discs from the same resume point. To play from the beginning, press ■ twice and then press ▷.

Using the DVD's Menu DVD

A DVD is divided into long sections of a picture or a music feature called "titles." When you play a DVD which contains several titles, you can select the title you want using the TOP MENU button.
When you play DVDs that allow you to select items such as the language for the subtitles and the language for the sound, select these items using the MENU button.



1 Press TOP MENU or MENU.
The disc's menu appears on the TV screen.
The contents of the menu vary from disc to disc.

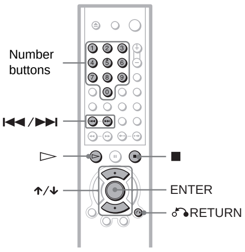
2 Press ←/↑/↓/→ or the number buttons to select the item you want to play or change.
If you press the number buttons, the following display appears.
Press the number buttons to select the item you want.

1

3 Press ENTER.

Playing VIDEO CDs with PBC Functions (PBC Playback) VCD

PBC (Playback Control) allows you to play VIDEO CDs interactively by following the menu on the TV screen.



1 Start playing a VIDEO CD with PBC functions.
The menu for your selection appears.

2 Select the item number you want by pressing ↑/↓ or the number buttons.

3 Press ENTER.

4 Follow the instructions in the menu for interactive operations.
Refer to the instructions supplied with the disc, as the operating procedure may differ depending on the VIDEO CD.

To return to the menu

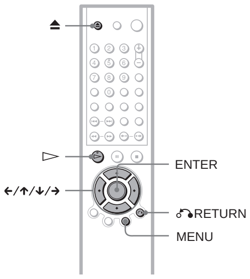
Press ↶ RETURN.

Hint
To play without using PBC, press I◀◀/▶▶I or the number buttons while the player is stopped to select a track, then press ▷ or ENTER.
"Play without PBC" appears on the TV screen and the player starts continuous play. You cannot play still pictures such as a menu.
To return to PBC playback, press ■ twice then press ▷.

Notes
- Depending on the VIDEO CD, "Press ENTER" in Step 3 may appear as "Press SELECT" in the instructions supplied with the disc. In this case, press ▷.
- The PBC functions of Super VCDs do not work with this player. Super VCDs are played in continuous play mode only.

Playing an MP3 Audio Track DATA CD

You can play back DATA CDs (CD-ROMs/CD-Rs/CD-RWs) recorded in MP3 (MPEG1 Audio Layer 3) format.



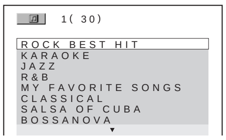
1 Press ⏏ and place a DATA CD on the disc tray.

2 Press ▷.
The disc tray closes, and the player starts to play the first MP3 audio track in the first album on the disc.

Notes
- The player can play MP3 audio tracks recorded in the following sampling frequencies: 32 kHz, 44.1 kHz, 48 kHz.
- The playback order may be different from the edited order. See "The Playback order of MP3 audio tracks" on the next page for details.

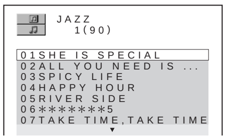
Selecting an album and track

1 Press MENU.
The list of MP3 albums recorded on the DATA CD appears.



1(30)
ROCK BEST HIT
KARAOKE
JAZZ
R&B
MY FAVORITE SONGS
CLASSICAL
SALSA OF CUBA
BOSSANOVA
▼

2 Select an album using ↑/↓ and press ENTER.
The list of tracks contained in the album appears.



JAZZ
1(90)
01SHE IS SPECIAL
02ALL YOU NEED IS ...
03SPICY LIFE
04HAPPY HOUR
05RIVER SIDE
06*******5
07TAKE TIME,TAKE TIME
▼

3 Select a track using ↑/↓ and press ENTER.
The selected track starts playing.
When a track or album is being played, its title is shaded.

To go to the next or previous page

Press → or ←.

To return to the previous display

Press ↶ RETURN.

To turn off the display

Press MENU.

Notes
- Only the letters in the alphabet and numbers can be used for album or track names. Anything else is displayed as "*".
- ID3 tags cannot be displayed.

About MP3 audio tracks

You can play MP3 audio tracks on CD-ROMs or CD-Rs/CD-RWs. However, the discs must be recorded according to ISO9660 level 1, level 2, or Joliet format for the player to recognize the tracks.
You can also play discs recorded in Multi Session.

See the instructions of the CD-R/CD-RW device or recording software (not supplied) for details on the recording format.

To play a Multi Session CD

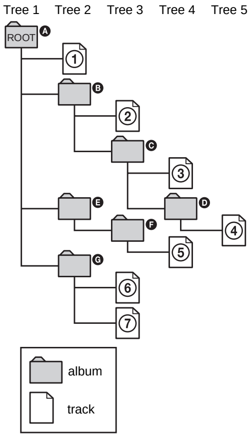
This player can play Multi Session CDs when an MP3 audio track is located in the first session. Any subsequent MP3 audio tracks, recorded in the later sessions, can also be played back.
When audio tracks and images in music CD format or video CD format are recorded in the first session, only the first session will be played back.

Notes
- If you put the extension ".MP3" to data not in MP3 format, the player cannot recognize the data properly and will generate a loud noise which could damage your speaker system.
- The player cannot play audio tracks in MP3PRO format.

The Playback order of MP3 audio tracks

The playback order of albums and tracks recorded on a DATA CD is as follows.

◆Structure of disc contents



When you insert a DATA CD and press ▷, the numbered tracks are played sequentially, from ① through ⑦. Any sub-albums/tracks contained within a currently selected album take priority over the next album in the same tree. (Example: Ⓒ contains Ⓓ so ④ is played before ⑤.)
When you press MENU and the list of MP3 albums appears (page 30), the albums are arranged in the following order: Ⓐ → Ⓑ → Ⓒ → Ⓓ → Ⓕ → Ⓖ. Albums that do not contain tracks (such as album Ⓔ) do not appear in the list.

Hints
- If you add numbers (01, 02, 03, etc.) to the front of the track file names, the tracks will be played in that order.
- Since a disc with many trees takes longer to start playback, it is recommended that you create albums of no more than two trees.

Notes
- Depending on the software you use to create the DATA CD, the playback order may differ from the illustration above.
- The playback order above may not be applicable if there are more than a total of 200 albums and tracks in the DATA CD.
- The player can recognize up to 100 albums (the player will count just albums, including albums that do not contain MP3 audio tracks). The player will not play any albums beyond the first 100 albums. Of the first 100 albums, the player will play no more than a combined total of 200 albums and tracks.

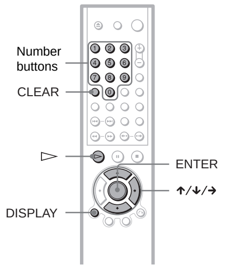
Various Play Mode Functions (Program Play, Shuffle Play, Repeat Play, A-B Repeat Play)

You can set the following play modes:
- Program Play (page 32)
- Shuffle Play (page 34)
- Repeat Play (page 35)
- A-B Repeat Play (page 35)

Note
The play mode is canceled when:
– you open the disc tray.
– the player enters standby mode by pressing I/⏻.

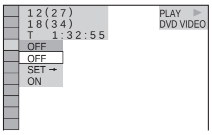
Creating your own program (Program Play) DVD VCD CD

You can play the contents of a disc in the order you want by arranging the order of the titles, chapters, or tracks on the disc to create your own program. You can program up to 99 titles, chapters, and tracks.



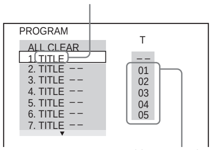
1 Press DISPLAY twice (when playing a CD, press once).
The Control Menu appears.

2 Press ↑/↓ to select (PROGRAM), then press ENTER.
The options for "PROGRAM" appear.


1 2 (2 7)
1 8 (3 4)
T 1 : 3 2 : 5 5
PLAY ▶
DVD VIDEO
OFF
OFF
SET →
ON

3 **Press ↑/↓ to select "SET →," then press ENTER.**

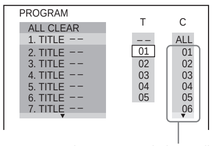
"TRACK" is displayed when you play a VIDEO CD or CD.


PROGRAM
T
ALL CLEAR
1. TITLE
2. TITLE – –
3. TITLE – –
4. TITLE – –
5. TITLE – –
6. TITLE – –
7. TITLE – –
– –
01
02
03
04
05

Titles or tracks recorded on a disc

4 **Press →.**

The cursor moves to the title or track row "T" (in this case, "01").


PROGRAM
T
C
ALL CLEAR
1. TITLE – –
2. TITLE – –
3. TITLE – –
4. TITLE – –
5. TITLE – –
6. TITLE – –
7. TITLE – –
– –
01
02
03
04
05
ALL
01
02
03
04
05
06

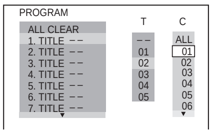
Chapters recorded on a disc

5 **Select the title, chapter, or track you want to program.**

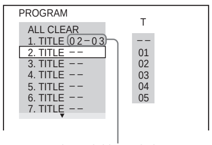
◆ **When playing a DVD**

For example, select chapter "03" of title "02."

Press ↑/↓ or the number buttons to select "02" under "T," then press ENTER.


PROGRAM
T
C
ALL CLEAR
1. TITLE – –
2. TITLE – –
3. TITLE – –
4. TITLE – –
5. TITLE – –
6. TITLE – –
7. TITLE – –
– –
01
02
03
04
05
ALL
01
02
03
04
05
06

Next, press ↑/↓ or the number buttons to select "03" under "C," then press ENTER.


PROGRAM
T
ALL CLEAR
1. TITLE 0 2 – 0 3
2. TITLE – –
3. TITLE – –
4. TITLE – –
5. TITLE – –
6. TITLE – –
7. TITLE – –
– –
01
02
03
04
05

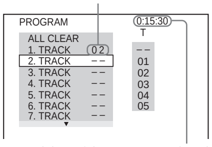
Selected title and chapter

◆ **When playing a VIDEO CD or CD**

For example, select track "02."

Press ↑/↓ or the number buttons to select "02" under "T," then press ENTER.

Selected track


PROGRAM
0:15:30
T
ALL CLEAR
1. TRACK 0 2
2. TRACK – –
3. TRACK – –
4. TRACK – –
5. TRACK – –
6. TRACK – –
7. TRACK – –
– –
01
02
03
04
05

Total time of the programmed tracks

6 **To program other titles, chapters, or tracks, repeat Steps 4 to 5.**

The programmed titles, chapters, and tracks are displayed in the selected order.

7 **Press ▷ to start Program Play.**

Program Play begins.

When the program ends, you can restart the same program again by pressing ▷.

To return to normal play

Press CLEAR, or select "OFF" in Step 3. To play the same program again, select "ON" in Step 3 and press ENTER.

To turn off the display

Press DISPLAY repeatedly until the display is turned off.

To change or cancel a program

1 Follow Steps 1 through 3 of "Creating your own program (Program Play)."

2 Select the program number of the title, chapter, or track you want to change or cancel using ↑/↓ or the number buttons, and press →.

3 Follow Step 5 for new programming. To cancel a program, select "--" under "T," then press ENTER.

➡continued

To cancel all the titles, chapters, or tracks in the programmed order

1 Follow Steps 1 through 3 of "Creating your own program (Program Play)."

2 Press ↑ and select "ALL CLEAR."

3 Press ENTER.

Hint

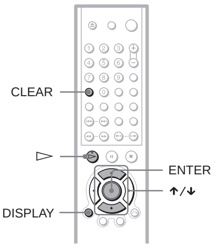
You can do Repeat Play or Shuffle Play of the programmed titles, chapters, or tracks. During Program Play, follow the Steps of "Repeat Play" (page 35) or "Shuffle Play" (page 34).

Notes

- When playing Super VCDs, the total time of the programmed tracks does not appear on the screen.
- You cannot use this function with VIDEO CDs with PBC playback.

Playing in random order (Shuffle Play) DVD VCD CD

You can have the player "shuffle" titles, chapters, or tracks. Subsequent "shuffling" may produce a different playing order.

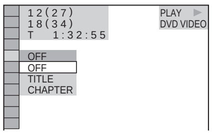

CLEAR
▷
ENTER
↑/↓
DISPLAY

1 **Press DISPLAY twice during playback (when playing a CD, press once).**

The Control Menu appears.

2 **Press ↑/↓ to select (SHUFFLE), then press ENTER.**

The options for "SHUFFLE" appear.


1 2 (2 7)
1 8 (3 4)
T 1 : 3 2 : 5 5
PLAY ▶
DVD VIDEO
OFF
OFF
TITLE
CHAPTER

3 **Press ↑/↓ to select the item to be shuffled.**

◆ **When playing a DVD**
- TITLE
- CHAPTER

◆ **When playing a VIDEO CD or CD**
- TRACK

◆ **When Program Play is activated**
- ON: shuffles titles, chapters, or tracks selected in Program Play.

4 **Press ENTER.**

Shuffle Play starts.

To return to normal play

Press CLEAR, or select "OFF" in Step 3.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

Hints

- You can set Shuffle Play while the player is stopped. After selecting the "SHUFFLE" option, press ▷. Shuffle Play starts.
- Up to 200 chapters in a disc can be played in random order when "CHAPTER" is selected.

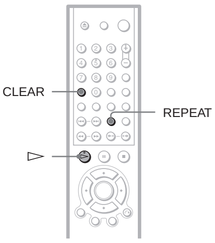
Note

You cannot use this function with VIDEO CDs with PBC playback.

Playing repeatedly (Repeat Play)

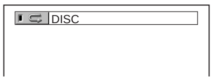
DVD VCD CD DATA CD

You can play all of the titles or tracks on a disc or a single title, chapter, or track repeatedly.
You can use a combination of Shuffle or Program Play modes.


CLEAR
REPEAT
▷

1 **Press REPEAT during playback.**

The following display appears.



2 **Press REPEAT repeatedly to select the item to be repeated.**

◆ **When playing a DVD**
- DISC: repeats all of the titles.
- TITLE: repeats the current title on a disc.
- CHAPTER: repeats the current chapter.

◆ **When playing a VIDEO CD or CD**
- DISC: repeats all of the tracks.
- TRACK: repeats the current track.

◆ **When playing a DATA CD (MP3 audio)**
- DISC: repeats all of the albums.
- ALBUM: repeats the current album.
- TRACK: repeats the current track.

◆ **When Program Play or Shuffle Play is activated**
- ON: repeats Program Play or Shuffle Play.

To return to normal play

Press CLEAR, or select "OFF" in Step 2.

Hints

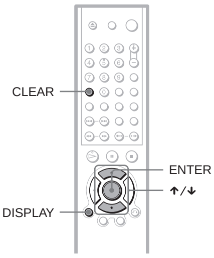
- You can set Repeat Play while the player is stopped. After selecting the "REPEAT" option, press ▷. Repeat Play starts.
- You can also select "REPEAT" from the Control Menu (page 12).

Note

You cannot use this function with VIDEO CDs with PBC playback.

Repeating a specific portion (A-B Repeat Play) DVD VCD CD

You can play a specific portion of a title, chapter or track repeatedly. (This function is useful when you want to memorize lyrics, etc.)

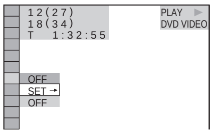

CLEAR
ENTER
↑/↓
DISPLAY

1 **Press DISPLAY twice during playback (when playing a CD, press once).**

The Control Menu appears.

2 **Press ↑/↓ to select (A-B REPEAT), then press ENTER.**

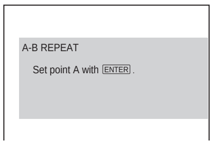
The options for "A-B REPEAT" appear.


1 2 (2 7)
1 8 (3 4)
T 1 : 3 2 : 5 5
PLAY ▶
DVD VIDEO
OFF
SET →
OFF

➡continued

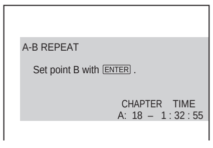
3 **Press ↑/↓ to select " SET →," then press ENTER.**

The "A-B REPEAT" setting display appears.


A-B REPEAT
Set point A with ENTER .

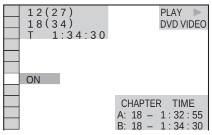
4 **During playback, when you find the starting point (point A) of the portion to be played repeatedly, press ENTER.**

The starting point (point A) is set.


A-B REPEAT
Set point B with ENTER .
CHAPTER TIME
A: 18 – 1 : 32 : 55

5 **When you reach the ending point (point B), press ENTER again.**

The set points are displayed and the player starts repeating this specific portion.


1 2 (2 7)
1 8 (3 4)
T 1 : 3 4 : 3 0
PLAY ▶
DVD VIDEO
ON
CHAPTER TIME
A: 18 – 1 : 32 : 55
B: 18 – 1 : 34 : 30

To return to normal play

Press CLEAR, or select "OFF" in Step 3.

To turn off the Control Menu

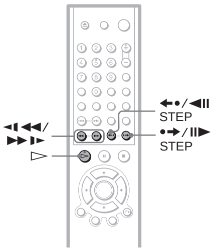
Press DISPLAY repeatedly until the Control Menu is turned off.

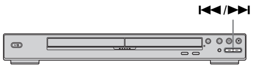
Note

When you set A-B Repeat Play, the settings for Shuffle Play, Repeat Play, and Program Play are canceled.

Searching for a Particular Point on a Disc (Search, Scan, Slow-motion Play, Freeze Frame)

You can quickly locate a particular point on a disc by monitoring the picture or playing back slowly.





Note

Depending on the DVD/VIDEO CD, you may not be able to do some of the operations described.

Locating a point quickly using the PREV (previous)/NEXT (next) buttons (Search) DVD VCD CD DATA CD

You can search for a particular point on a disc using |◀◀/▶▶| on the player.
During playback, press and hold ▶▶| to locate a point in the playback direction or press and hold |◀◀ to locate a point in the opposite direction. When you find the point you want, release the button to return to normal playback speed.

Locating a point quickly by playing a disc in fast forward or fast reverse (Scan) DVD VCD CD DATA CD

Press ◄▮ ◀◀ or ▶▶ ▮► while playing a disc. When you find the point you want, press ▷ to return to normal speed. Each time you press ◄▮ ◀◀ or ▶▶ ▮► during scan, the playback speed changes. With each press the indication changes as shown below. Actual speeds may differ with some discs.

Playback direction

×2▶ → FF1▶▶ → FF2▶▶ → FF3▶▶

FF3▶▶ (DVD/VIDEO CD only)
×2▶ (DVD/CD only)

Opposite direction

×2◀ → FR1◀◀ → FR2◀◀ → FR3◀◀

FR3◀◀ (DVD/VIDEO CD only)
×2◀ (DVD only)

The "×2▶"/ "×2◀" playback speed is about twice the normal speed.
The "FF3▶▶"/"FR3◀◀" playback speed is faster than "FF2▶▶"/"FR2◀◀" and the "FF2▶▶"/"FR2◀◀" playback speed is faster than "FF1▶▶"/"FR1◀◀."

Watching frame by frame (Slow-motion play) DVD VCD

Press ◄▮ ◀◀ or ▶▶ ▮► when the player is in pause mode. To return to the normal speed, press ▷.
Each time you press ◄▮ ◀◀ or ▶▶ ▮► during Slow-motion play, the playback speed changes. Two speeds are available. With each press the indication changes as follows:

Playback direction
SLOW2 ▮► ←→ SLOW1 ▮►

Opposite direction (DVD only)
SLOW2 ◄▮ ←→ SLOW1 ◄▮

→continued

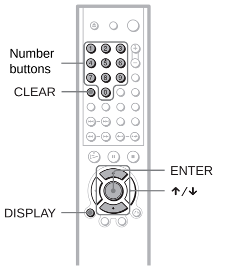
The "SLOW2 ▮►"/"SLOW2 ◄▮" playback speed is slower than "SLOW1 ▮►"/"SLOW1 ◄▮."

Playing one frame at a time (Freeze Frame) DVD VCD

When the player is in the pause mode, press •→/II► STEP to go to the next frame. Press ←•/◄II STEP to go to the preceding frame (DVD only). If you hold the button down, you can view the frames in succession. To return to normal playback, press ▷.

Searching for a Title/ Chapter/Track/Scene, etc. DVD VCD CD DATA CD

You can search a DVD by title or chapter, and you can search a VIDEO CD/CD/DATA CD by track, index, or scene. As titles and tracks are assigned unique numbers on the disc, you can select the desired one by entering its number. Or, you can search for a scene using the time code.



1 **Press DISPLAY.**

The Control Menu appears.

2 **Press ↑/↓ to select the search method.**

◆ When playing a DVD

TITLE
CHAPTER
TIME/TEXT

Select "TIME/TEXT" to search for a starting point by inputting the time code.

◆ When playing a VIDEO CD without PBC Playback

TRACK
INDEX

◆ When playing a VIDEO CD with PBC Playback

SCENE
INDEX

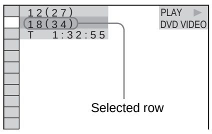
◆ When playing a CD

TRACK
INDEX

◆ When playing a DATA CD (MP3 audio)

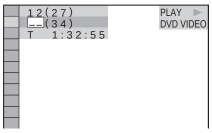
ALBUM
TRACK

Example: when you select CHAPTER
"** (**)" is selected (** refers to a number). The number in parentheses indicates the total number of titles, chapters, tracks, indexes or scenes.


```
1 2 ( 2 7 )                 PLAY ▶
1 8 ( 3 4 )                 DVD VIDEO
T    1 : 3 2 : 5 5
```

3 **Press ENTER.**

"** (**)" changes to "-- (**)."


```
1 2 ( 2 7 )                 PLAY ▶
_ _ ( 3 4 )                 DVD VIDEO
T    1 : 3 2 : 5 5
```

4 **Press ↑/↓ or the number buttons to select the title, chapter, track, index, or scene number you want to search.**

If you make a mistake
Cancel the number by pressing CLEAR, then select another number.

5 **Press ENTER.**

The player starts playback from the selected number.

To turn off the Control Menu
Press DISPLAY repeatedly until the Control Menu is turned off.

To search for a scene using the time code (DVD only)

1 In Step 2, select TIME/TEXT.
"T **:**:**" (playing time of the current title) is selected.

2 Press ENTER.
"T **:**:**" changes to "T --:--:--."

3 Input the time code using the number buttons, then press ENTER.
For example, to find the scene at 2 hours, 10 minutes, and 20 seconds after the beginning, just enter "2:10:20."

Hints

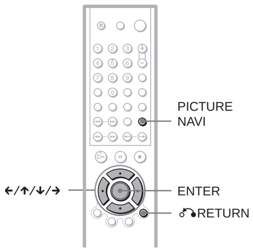
- When the Control Menu display is turned off, you can search for a chapter (DVD) or track (CD) by pressing the number buttons and ENTER.
- You can display the first scene of titles, chapters, or tracks recorded on the disc on a screen divided into 9 sections. You can start playback directly by selecting one of the scenes. For details, see "Searching by Scene (PICTURE NAVIGATION)" on the next page.

Notes

- The title, chapter, or track number displayed is the same number recorded on the disc.
- You cannot search for a scene on a DVD+RW using the time code.

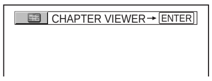
Searching by Scene (PICTURE NAVIGATION) DVD VCD

You can divide the screen into 9 subscreens and find the desired scene quickly.



1 **Press PICTURE NAVI during playback.**

The following display appears.



2 **Press PICTURE NAVI repeatedly to select the item.**

Refer to the explanations given for each item in the following sections.
- CHAPTER VIEWER (for DVD VIDEO only)
- TITLE VIEWER (for DVD VIDEO only)
- TRACK VIEWER (for VIDEO CD only)

3 **Press ENTER.**

To return to normal play
Press RETURN.

Hint
You can also select "PICTURE NAVIGATION" from the Control Menu (page 12).

Notes

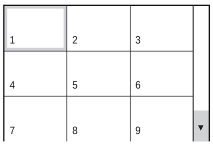
- Depending on the disc, you may not be able to select all functions.
- The sound is muted when using this function.

Scanning the title, chapter, or track (TITLE VIEWER, CHAPTER VIEWER, TRACK VIEWER) DVD VCD

You can divide the screen into 9 subscreens and display the first scene of titles, chapters, or tracks.

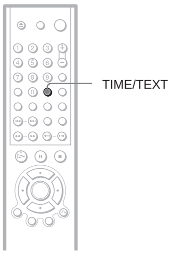
You can also play back from the selected title, chapter, or track. After performing Step 3 of "Searching by Scene (PICTURE NAVIGATION)" above, select the scene using ←/↑/↓/→ and press ENTER.

Hint
If there are more than 9 titles, chapters, or tracks, ▼ is displayed at the bottom right.
To display the additional titles, chapters, or tracks, select the bottom right scene (the position 9) and press ↓. To return to the previous scene, select the top left scene (the position 1) and press ↑.



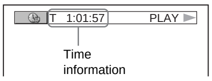
Checking the Playing Time and Remaining Time DVD VCD CD DATA CD

You can check the playing time and remaining time of the current title, chapter, or track. Also, you can check the DVD/CD text or track name (MP3 audio) recorded on the disc.



1 **Press TIME/TEXT during playback.**

The following display appears.


T 1:01:57
PLAY
Time information

2 **Press TIME/TEXT repeatedly to change the time information.**

The display and the kinds of time that you can change depend on the disc you are playing.

◆ When playing a DVD
- T ∗:∗:∗ (hours: minutes: seconds)
  Playing time of the current title
- T–∗:∗:∗
  Remaining time of the current title
- C ∗:∗:∗
  Playing time of the current chapter
- C–∗:∗:∗
  Remaining time of the current chapter

◆ When playing a VIDEO CD (with PBC functions)
- ∗:∗ (minutes: seconds)
  Playing time of the current scene

◆ When playing a VIDEO CD (without PBC functions) or CD
- T ∗:∗ (minutes: seconds)
  Playing time of the current track
- T–∗:∗
  Remaining time of the current track
- D ∗:∗
  Playing time of the current disc
- D–∗:∗
  Remaining time of the current disc

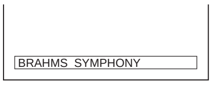
◆ When playing a DATA CD (MP3 audio)
- ∗:∗ (minutes: seconds)
  Playing time of the current track

◆ When playing a Super VCD
- T ∗:∗ (minutes: seconds)
  Playing time of the current track

To check the DVD/CD text or track and album names (MP3 audio)

Press TIME/TEXT repeatedly in Step 2 to display text recorded on the DVD/CD/DATA CD.

The DVD/CD text appears only when text is recorded in the disc. You cannot change the text. If the disc does not contain text, "NO TEXT" appears.

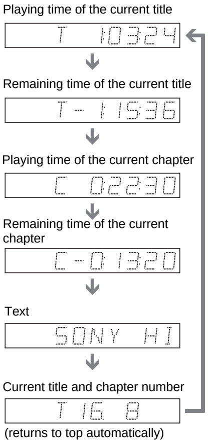

BRAHMS SYMPHONY

For DATA CDs, the track and album names of the MP3 audio track appears (page 44).

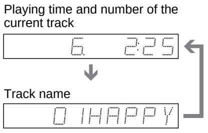
Checking the information on the front panel display

You can view the time information and text displayed on the TV screen also on the front panel display. The information on the front panel display changes as follows when you change the time information on your TV screen.

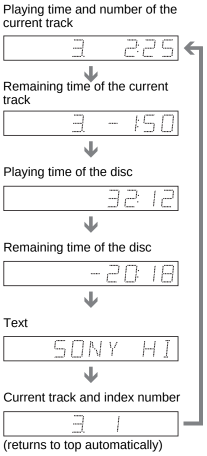
When playing a DVD


Playing time of the current title
T 1:03:24
Remaining time of the current title
T - 1:15:36
Playing time of the current chapter
C 0:22:30
Remaining time of the current chapter
C - 0:13:20
Text
SONY HI
Current title and chapter number
T 16. 8
(returns to top automatically)

When playing a DATA CD (MP3 audio)


Playing time and number of the current track
6. 2:25
Track name
01HAPPY

When playing a VIDEO CD (without PBC functions) or CD

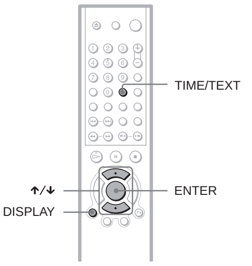

Playing time and number of the current track
3. 2:25
Remaining time of the current track
3. - 1:50
Playing time of the disc
32:12
Remaining time of the disc
-20:18
Text
SONY HI
Current track and index number
3. 1
(returns to top automatically)

Hints
- When playing VIDEO CDs with PBC functions, the scene number and the playing time are displayed.
- Long text that does not fit in a single line will scroll across the front panel display.
- You can also check the time information and text using the Control Menu (page 12).

Notes
- Depending on the type of disc being played, the DVD/CD text or track name may not be displayed.
- The player can only display the first level of the DVD/CD text, such as the disc name or title.
- Playing time of MP3 audio tracks may not be displayed correctly.

Checking the Play Information

You can check information such as the bit rate or the disc layer that is being played.


TIME/TEXT
↑/↓
ENTER
DISPLAY

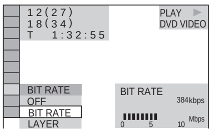
Checking the play information of a DVD (ADVANCED) DVD

1 **Press DISPLAY during playback.**

The Control Menu is displayed.

2 **Press ↑/↓ to select (ADVANCED), then press ENTER.**

The options for "ADVANCED" appear.


1 2 (2 7)
1 8 (3 4)
T 1 : 3 2 : 5 5
PLAY
DVD VIDEO
BIT RATE
OFF
BIT RATE
LAYER
BIT RATE
384kbps
0
5
10
Mbps

3 **Press ↑/↓ to select items.**

For each item, please refer to "Displays of each item."
- BIT RATE: displays the bit rate.
- LAYER: displays the layer and the pick-up point.

4 **Press ENTER.**

To close the ADVANCED window

Select "OFF" in Step 3.

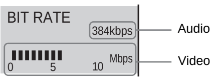
To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

Displays of each item

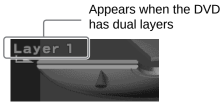
By pressing DISPLAY repeatedly, you can display either "BIT RATE" or "LAYER," whichever was selected in "ADVANCED."

◆BIT RATE


BIT RATE
384kbps
Audio
Mbps
0
5
10
Video

Bit rate refers to the amount of video/audio data per second in a disc. While playing a disc, an approximate bit rate of the playback picture is displayed as Mbps (Mega bit per second) and the audio as kbps (kilo bit per second). The higher the bit rate, the larger the amount of data. However, this does not always mean that you can get higher quality pictures or sounds.

◆LAYER


Appears when the DVD has dual layers
Layer 1

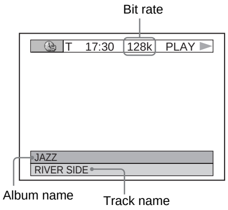
Indicates the approximate point where the disc is playing.

If it is a dual-layer DVD, the player indicates which layer is being read ("Layer 0" or "Layer 1").

For details on the layers, see page 67 (DVD VIDEO).

Checking the play information of a DATA CD DATA CD

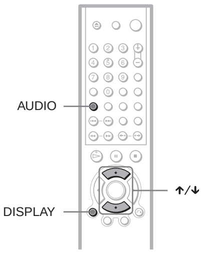
By pressing TIME/TEXT while playing MP3 audio tracks on a DATA CD, you can display the audio bit rate (the amount of data per second of the current audio).


Bit rate
T 17:30
128k
PLAY
JAZZ
RIVER SIDE
Album name
Track name

Changing the Sound

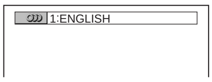
DVD VCD CD DATA CD

When playing a DVD recorded in multiple audio formats (PCM, Dolby Digital, or DTS), you can change the audio format. If the DVD is recorded with multilingual tracks, you can also change the language.
With CDs, DATA CDs, or VIDEO CDs, you can select the sound from the right or left channel and listen to the sound of the selected channel through both the right and left speakers. For example, when playing a disc containing a song with the vocals on the right channel and the instruments on the left channel, you can hear the instruments from both speakers by selecting the left channel.



1 Press AUDIO during playback.

The following display appears.


1:ENGLISH

2 Press AUDIO repeatedly to select the desired audio signal.

◆ When playing a DVD
Depending on the DVD, the choice of language varies.
When 4 digits are displayed, they indicate a language code. Refer to “Language Code List” on page 70 to see which language the code represents.
When the same language is displayed two or more times, the DVD is recorded in multiple audio formats.

◆ When playing a VIDEO CD, CD, or DATA CD (MP3 audio)
The default setting is underlined.
- STEREO: The standard stereo sound
- 1/L: The sound of the left channel (monaural)
- 2/R: The sound of the right channel (monaural)

◆ When playing a Super VCD
The default setting is underlined.
- 1:STEREO: The stereo sound of the audio track 1
- 1:1/L: The sound of the left channel of the audio track 1 (monaural)
- 1:2/R: The sound of the right channel of the audio track 1 (monaural)
- 2:STEREO: The stereo sound of the audio track 2
- 2:1/L: The sound of the left channel of the audio track 2 (monaural)
- 2:2/R: The sound of the right channel of the audio track 2 (monaural)

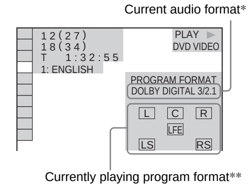
Hint
You can also select “AUDIO” from the Control Menu (page 12).

Note
While playing a Super VCD on which the audio track 2 is not recorded, no sound will come out when you select “2:STEREO,” “2:1/L,” or “2:2/R.”

Displaying the audio information of the disc DVD

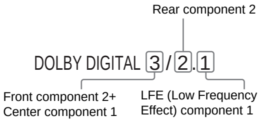
Press DISPLAY during playback to display the Control Menu. Select “AUDIO” using ↑/↓. The channels being played are displayed on the screen.
For example, in Dolby Digital format, multiple signals ranging from monaural to 5.1 channel signals can be recorded on a DVD. Depending on the DVD, the number of the recorded channels may differ.

➡continued



*“PCM,” “DTS,” or “DOLBY DIGITAL” is displayed.
In the case of “DOLBY DIGITAL,” the channels in the playing track are displayed by numbers as follows:

For Dolby Digital 5.1 ch:


Rear component 2
DOLBY DIGITAL 3/2.1
Front component 2+ Center component 1
LFE (Low Frequency Effect) component 1

**The letters in the program format display mean the following sound component:

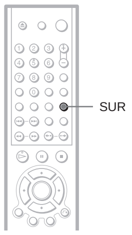
L:	Front (left)
R:	Front (right)
C:	Center
LS:	Rear (left)
RS:	Rear (right)
S:	Rear (monaural): The rear component of the Dolby Surround processed signal and the Dolby Digital signal
LFE:	Low Frequency Effect signal

Hint
For Dolby Digital and DTS, “LFE” is always enclosed in a solid line regardless of the LFE signal component being output.

Note
If “DTS” is set to “OFF” in “AUDIO SETUP” (page 63) the DTS track selection option will not appear on the screen even if the disc contains DTS tracks.

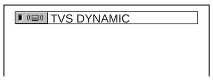
TV Virtual Surround Settings (TVS) DVD

When you connect a stereo TV or 2 front speakers, TVS (TV Virtual Surround) lets you enjoy surround sound effects by using sound imaging to create virtual rear speakers from the sound of the front speakers (L: left, R: right) without using actual rear speakers. TVS was developed by Sony to produce surround sound for home use using just a stereo TV.
If the player is set up to output the signal from the DIGITAL OUT (OPTICAL or COAXIAL) jack, the surround effect will only be heard when “DOLBY DIGITAL” is set to “D-PCM” in “AUDIO SETUP” (page 63).



1 Press SUR during playback.

The following display appears.

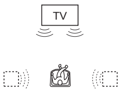

TVS DYNAMIC

2 Press SUR repeatedly to select one of the TVS sounds.

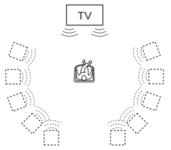
Refer to the following explanations given for each item.
- TVS DYNAMIC
- TVS WIDE
- TVS NIGHT
- TVS STANDARD

To cancel the setting
Select “OFF” in Step 2.

◆TVS DYNAMIC
Creates virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers (shown below).
This mode is effective when the distance between the front L and R speakers is short, such as with built-in speakers on a stereo TV.

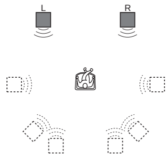


◆TVS WIDE
Creates virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers. The virtual speakers are reproduced as shown in the illustration below.
This mode is effective when the distance between the front L and R speakers is short, such as with built-in speakers on a stereo TV.



◆TVS NIGHT
Large sounds, such as explosions, are suppressed, but the quieter sounds are unaffected. This feature is useful when you want to hear the dialog and enjoy the surround sound effects of “TVS WIDE” at low volume.

◆TVS STANDARD
Creates virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers. The virtual speakers are reproduced as shown in the illustration below. Use this setting when you want to use TVS with 2 separate speakers.



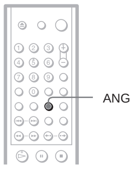
L: Front speaker (left)
R: Front speaker (right)
⬚: Virtual speaker

Hints
- You can select “TVS” by pressing the SURROUND button on the player.
- You can also select “TVS” from the Control Menu (page 12).

Notes
- When the playing signal does not contain a signal for the rear speakers, the surround effects cannot be heard.
- When you select one of the TVS modes, turn off the surround setting of the connected TV or amplifier (receiver).
- Make sure that your listening position is between and at an equal distance from your speakers, and that the speakers are located in similar surroundings.
- Not all discs will respond to the “TVS NIGHT” function in the same way.

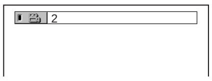
Changing the Angles DVD

If various angles (multi-angles) for a scene are recorded on the DVD, “🎥” appears in the front panel display. This means that you can change the viewing angle.



1 Press ANGLE during playback.

The number of the angle appears on the display.


2

2 Press ANGLE repeatedly to select the angle number.

The scene changes to the selected angle.

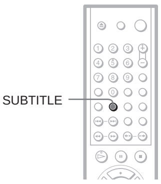
Hint
You can also select “ANGLE” from the Control Menu (page 12).

Note
Depending on the DVD, you may not be able to change the angles even if multi-angles are recorded on the DVD.

Displaying the Subtitles

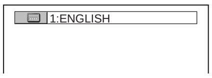
DVD

If subtitles are recorded on the discs, you can change the subtitles or turn them on and off whenever you want while playing a DVD.



1 Press SUBTITLE during playback.

The following display appears.


1:ENGLISH

2 Press SUBTITLE repeatedly to select the setting.

When playing a DVD
Select the language.
Depending on the DVD, the choice of language varies.
When 4 digits are displayed, they indicate a language code. Refer to “Language Code List” on page 70 to see which language the code represents.

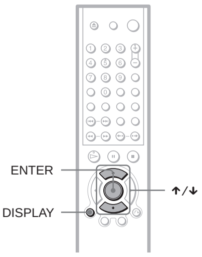
To turn off the subtitles
Select “OFF” in Step 2.

Hint
You can also select “SUBTITLE” from the Control Menu (page 12).

Note
Depending on the DVD, you may not be able to change the subtitles even if multilingual subtitles are recorded on it. You also may not be able to turn them off.

Adjusting the Picture Quality (BNR) DVD VCD

The Block Noise Reduction (BNR) function adjusts the picture quality by reducing the “block noise” or mosaic like patterns that appear on your TV screen.

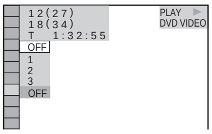


1 Press DISPLAY twice during playback.

The Control Menu appears.

2 Press ↑/↓ to select (BNR), then press ENTER.

The options for “BNR” appear.



```
1 2 ( 2 7 )                PLAY ▶
1 8 ( 3 4 )                DVD VIDEO
T    1 : 3 2 : 5 5
OFF
1
2
3
OFF
```

3 Press ↑/↓ to select a level.

- 1: reduces the “block noise.”
- 2: reduces the “block noise” more than 1.
- 3: reduces the “block noise” more than 2.

4 Press ENTER.

The disc plays with the setting you selected.

To cancel the “BNR” setting

Select “OFF” in Step 3.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

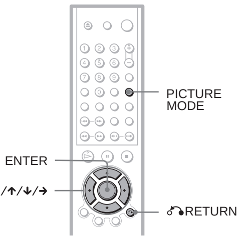
Notes

- If the outlines of the images on your screen should become blurred, set “BNR” to “OFF.”
- Depending on the disc or the scene being played, there may be no “BNR” effect, or it may be hard to discern.

Adjusting the Playback Picture (CUSTOM PICTURE MODE)

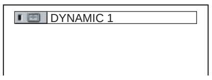
DVD VCD

You can adjust the video signal of the DVD or VIDEO CD from the player to obtain the picture quality you want. Choose the setting that best suits the program you are watching. When you select “MEMORY,” you can make further adjustments to each element of the picture (color, brightness, etc.).



1 Press PICTURE MODE during playback.

The following display appears.



```
DYNAMIC 1
```

2 Press PICTURE MODE repeatedly to select the setting you want.

The default setting is underlined.

- STANDARD: displays a standard picture.
- DYNAMIC 1: produces a bold dynamic picture by increasing the picture contrast and the color intensity.
- DYNAMIC 2: produces a more dynamic picture than DYNAMIC 1 by further increasing the picture contrast and the color intensity.
- CINEMA 1: enhances details in dark areas by increasing the black level.
- CINEMA 2: White colors become brighter and black colors become richer, and the color contrast is increased.
- MEMORY: adjusts the picture in greater detail.

Hints

- When you watch a movie, “CINEMA 1” or “CINEMA 2” is recommended.
- The picture can be adjusted by pressing the PICTURE MODE button on the player as well.
- You can also select “CUSTOM PICTURE MODE” from the Control Menu (page 12).

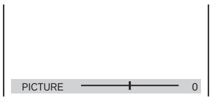
Adjusting the picture items in “MEMORY”

You can adjust each element of the picture individually.

- PICTURE: changes the contrast
- BRIGHTNESS: changes the overall brightness
- COLOR: makes the colors deeper or lighter
- HUE: changes the color balance

1 Press PICTURE MODE repeatedly to select “MEMORY,” then press ENTER.

The “PICTURE” adjustment bar appears.



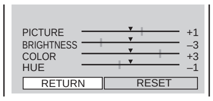
```
PICTURE                 0
```

2 Press ←/→ to adjust the picture contrast, then press ENTER.

The adjustment is saved, and “BRIGHTNESS” adjustment bar appears.

3 Repeat Step 2 to adjust “BRIGHTNESS,” “COLOR,” and “HUE.”

The Custom Picture Mode display appears. You can check each adjustment.



```
PICTURE        +1
BRIGHTNESS     –3
COLOR          +3
HUE            –1
RETURN   RESET
```

To turn off the display

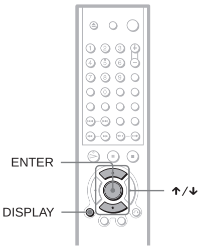
Press RETURN , or select “RETURN” in Step 3 and press ENTER.

Hints

- To reset the picture items to the default values, press → after Step 3 to select “RESET” and press ENTER.
- If you do not want to save the adjustment in Step 2, you can go to the next picture adjustment item by pressing ↑/↓ without saving.

Enhancing the Playback Picture (DIGITAL VIDEO ENHANCER) DVD VCD

The Digital Video Enhancer (DVE) function makes the picture appear clear and crisp by enhancing the outlines of images on your TV screen. Also, this function can soften the images on the screen.

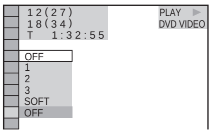


1 Press DISPLAY twice during playback.

The Control Menu appears.

2 Press ↑/↓ to select (DIGITAL VIDEO ENHANCER), then press ENTER.

The options for “DIGITAL VIDEO ENHANCER” appear.



```
1 2 ( 2 7 )                PLAY ▶
1 8 ( 3 4 )                DVD VIDEO
T    1 : 3 2 : 5 5

OFF
1
2
3
SOFT
OFF
```

3 Press ↑/↓ to select a level.

- 1: enhances the outline.
- 2: enhances the outline more than 1.
- 3: enhances the outline more than 2.
- SOFT: softens the image (DVD only).

➡continued

4 Press ENTER.

The disc plays with the setting you selected.

To cancel the “DIGITAL VIDEO ENHANCER” setting

Select “OFF” in Step 3.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

Note

Depending on the disc or the scene being played, noise found in the disc may become more apparent. If this happens, it is recommended that you use the BNR function (page 49) with the DVE function. If the condition still does not improve, reduce the Digital Video Enhancer level, or select “SOFT” (DVD only) in Step 3 above.

Locking Discs (CUSTOM PARENTAL CONTROL, PARENTAL CONTROL)

You can set two kinds of playback restrictions for the desired disc.

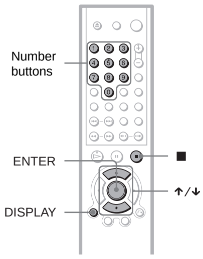
- Custom Parental Control
  You can set playback restrictions so that the player will not play inappropriate discs.
- Parental Control
  Playback of some DVDs can be limited according to a predetermined level such as the age of the users. Scenes may be blocked or replaced with different scenes.

The same password is used for both Parental Control and Custom Parental Control.

Custom Parental Control

DVD VCD CD

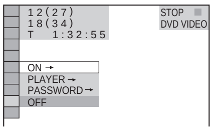
You can set the same Custom Parental Control password for up to 40 discs. When you set the 41st-disc, the first disc is canceled.



1 **Insert the disc you want to lock.**
If the disc is playing, press ■ to stop playback.

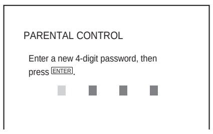
2 **Press DISPLAY while the player is in stop mode.**
The Control Menu appears.

3 **Press ↑/↓ to select (PARENTAL CONTROL), then press ENTER.**
The options for “PARENTAL CONTROL” appear.



4 **Press ↑/↓ to select “ ON →,” then press ENTER.**

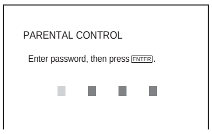
◆ If you have not entered a password
The display for registering a new password appears.


PARENTAL CONTROL

Enter a new 4-digit password, then press ENTER.

Enter a 4-digit password using the number buttons, then press ENTER.
The display for confirming the password appears.

◆ When you have already registered a password
The display for entering the password appears.


PARENTAL CONTROL

Enter password, then press ENTER.

5 **Enter or re-enter your 4-digit password using the number buttons, then press ENTER.**
“Custom parental control is set.” appears and then the screen returns to the Control Menu.

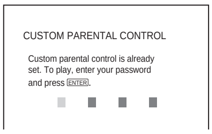
➡continued

To turn off the Custom Parental Control function

1. Follow Steps 1 through 3 of “Custom Parental Control.”
2. Press ↑/↓ to select “OFF →,” then press ENTER.
3. Enter your 4-digit password using the number buttons, then press ENTER.

To play a disc for which Custom Parental Control is set

1. Insert the disc for which Custom Parental Control is set.
   The “CUSTOM PARENTAL CONTROL” display appears.


CUSTOM PARENTAL CONTROL

Custom parental control is already set. To play, enter your password and press ENTER.

2. Enter your 4-digit password using the number buttons, then press ENTER.
   The player is ready for playback.

Hint

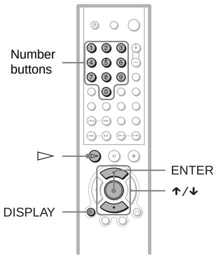
If you forget your password, enter the 6-digit number “199703” using the number buttons when the “CUSTOM PARENTAL CONTROL” display asks you for your password, then press ENTER. The display will ask you to enter a new 4-digit password.

Note

Once you set Custom Parental Control with a recorded disc such as a DVD-RW, the display for entering the password may appear again when you insert a different recorded disc. Input the password to play the disc.

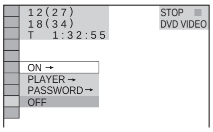
Parental Control (limited playback) DVD

Playback of some DVDs can be limited according to a predetermined level such as the age of the users. The “PARENTAL CONTROL” function allows you to set a playback limitation level.



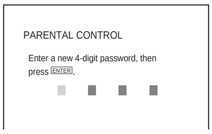
1 **Press DISPLAY while the player is in stop mode.**
The Control Menu appears.

2 **Press ↑/↓ to select (PARENTAL CONTROL), then press ENTER.**
The options for “PARENTAL CONTROL” appear.



3 **Press ↑/↓ to select “ PLAYER →,” then press ENTER.**

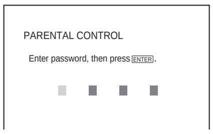
◆ If you have not entered a password
The display for registering a new password appears.


PARENTAL CONTROL

Enter a new 4-digit password, then press ENTER.

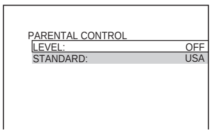
Enter a 4-digit password using the number buttons, then press ENTER.
The display for confirming the password appears.

◆ When you have already registered a password
The display for entering the password appears.


PARENTAL CONTROL

Enter password, then press ENTER.

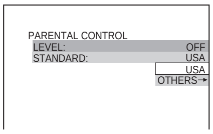
4 **Enter or re-enter your 4-digit password using the number buttons, then press ENTER.**
The display for setting the playback limitation level appears.


PARENTAL CONTROL

LEVEL: OFF

STANDARD: USA

5 **Press ↑/↓ to select “ STANDARD,” then press ENTER.**
The selection items for “STANDARD” are displayed.

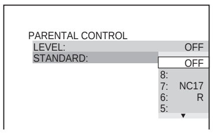

PARENTAL CONTROL

LEVEL: OFF

STANDARD: USA

6 **Press ↑/↓ to select a geographic area as the playback limitation level, then press ENTER.**
The area is selected.
When you select “OTHERS →,” select and enter a standard code in the table on page 56 using the number buttons.

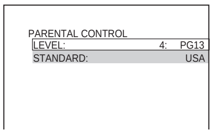
7 **Press ↑/↓ to select “ LEVEL,” then press ENTER.**
The selection items for “LEVEL” are displayed.


PARENTAL CONTROL

LEVEL: OFF

STANDARD:

8 **Select the level you want using ↑/↓, then press ENTER.**
Parental Control setting is complete.


PARENTAL CONTROL

LEVEL: 4: PG13

STANDARD: USA

The lower the value, the stricter the limitation.

To turn off the Parental Control function
Set “LEVEL” to “OFF” in Step 8.

To play a disc for which Parental Control is set

1. Insert the disc and press ▷.
   The display for entering your password appears.
2. Enter your 4-digit password using the number buttons, then press ENTER.
   The player starts playback.

Hint

If you forget your password, remove the disc and repeat Steps 1 to 3 of “Parental Control (limited playback).” When you are asked to enter your password, enter “199703” using the number buttons, then press ENTER. The display will ask you to enter a new 4-digit password. After you enter a new 4-digit password, replace the disc in the player and press ▷. When the display for entering your password appears, enter your new password.

Notes

- When you play discs which do not have the Parental Control function, playback cannot be limited on this player.
- Depending on the disc, you may be asked to change the parental control level while playing the disc. In this case, enter your password, then change the level. If the Resume Play mode is canceled, the level returns to the previous level.

➡continued

Area Code

Standard	Code number
Argentina	2044
Australia	2047
Austria	2046
Belgium	2057
Brazil	2070
Canada	2079
Chile	2090
China	2092
Denmark	2115
Finland	2165
France	2174
Germany	2109
India	2248
Indonesia	2238
Italy	2254
Japan	2276
Korea	2304
Malaysia	2363
Mexico	2362
Netherlands	2376
New Zealand	2390
Norway	2379
Pakistan	2427
Philippines	2424
Portugal	2436
Russia	2489
Singapore	2501
Spain	2149
Sweden	2499
Switzerland	2086
Thailand	2528
United Kingdom	2184

Changing the password

1 **Press DISPLAY while the player is in stop mode.**
The Control Menu appears.

2 **Press ↑/↓ to select (PARENTAL CONTROL), then press ENTER.**
The options for “PARENTAL CONTROL” appear.

3 **Press ↑/↓ to select “ PASSWORD →,” then press ENTER.**
The display for entering the password appears.

4 **Enter your 4-digit password using the number buttons, then press ENTER.**

5 **Enter a new 4-digit password using the number buttons, then press ENTER.**

6 **To confirm your password, re-enter it using the number buttons, then press ENTER.**

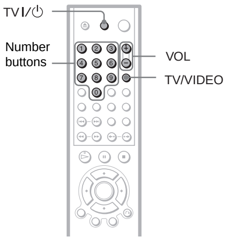
If you make a mistake entering your password
Press ← before you press ENTER and input the correct number.

If you make a mistake
Press ↶ RETURN.

To turn off the display
Press DISPLAY repeatedly until the display is turned off.

Controlling Your TV with the Supplied Remote

You can control the sound level, input source, and power switch of your Sony TV with the supplied remote.



You can control your TV using the buttons below.

By pressing	You can
TV I/⏻	Turn the TV on or off
VOL +/–	Adjust the volume of the TV
TV/VIDEO	Switch the TV's input source between the TV and other input sources.

Notes

Depending on the unit being connected, you may not be able to control your TV using some of the buttons.

Controlling other TVs with the remote

You can control the sound level, input source, and power switch of non-Sony TVs as well. If your TV is listed in the table below, set the appropriate manufacturer's code.

1 While holding down TV I/⏻, press the number buttons to select your TV's manufacturer's code (see the table below).

2 Release TV I/⏻.

Code numbers of controllable TVs

Manufacturer	Code number
Sony (default)	01
JVC	09
Panasonic	19
Philips	21
RCA	10
Samsung	20
Sanyo	11
Sharp	18
Toshiba	07
Zenith	15

Notes

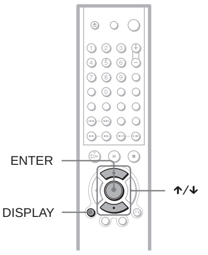
- If you enter a new code number, the code number previously entered will be erased.
- When you replace the batteries of the remote, the code number you have set may be reset to the default setting. Set the appropriate code number again.

Using the Setup Display

By using the Setup Display, you can make various adjustments to items such as picture and sound. You can also set a language for the subtitles and the Setup Display, among other things. For details on each Setup Display item, see pages from 59 to 63.

Note

Playback settings stored in the disc take priority over the Setup Display settings and not all the functions described may work.

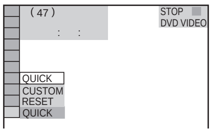


1 Press DISPLAY when the player is in stop mode.

The Control Menu appears.

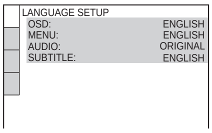
2 Press ↑/↓ to select (SETUP), then press ENTER.

The options for "SETUP" appear.


(47)
: :
STOP
DVD VIDEO
QUICK
CUSTOM
RESET
QUICK

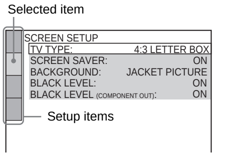
3 Press ↑/↓ to select " CUSTOM," then press ENTER.

The Setup Display appears.


LANGUAGE SETUP
OSD: ENGLISH
MENU: ENGLISH
AUDIO: ORIGINAL
SUBTITLE: ENGLISH

4 Press ↑/↓ to select the setup item from the displayed list: " LANGUAGE SETUP," " SCREEN SETUP," " CUSTOM SETUP," or " AUDIO SETUP." Then press ENTER.

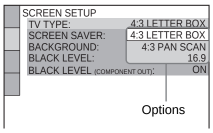
The Setup item is selected.
Example: "SCREEN SETUP"



SCREEN SETUP
TV TYPE: 4:3 LETTER BOX
SCREEN SAVER: ON
BACKGROUND: JACKET PICTURE
BLACK LEVEL: ON
BLACK LEVEL (COMPONENT OUT): ON

5 Select an item using ↑/↓, then press ENTER.

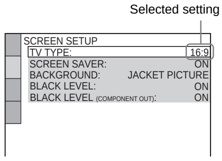
The options for the selected item appear.
Example: "TV TYPE"



SCREEN SETUP
TV TYPE: 4:3 LETTER BOX
SCREEN SAVER: 4:3 LETTER BOX
BACKGROUND: 4:3 PAN SCAN
BLACK LEVEL: 16.9
BLACK LEVEL (COMPONENT OUT): ON

6 Select a setting using ↑/↓, then press ENTER.

The setting is selected and setup is complete.
Example: "16:9"



SCREEN SETUP
TV TYPE: 16:9
SCREEN SAVER: ON
BACKGROUND: JACKET PICTURE
BLACK LEVEL: ON
BLACK LEVEL (COMPONENT OUT): ON

To turn off the display

Press DISPLAY repeatedly until the display is turned off.

To enter the Quick Setup mode

Select "QUICK" in Step 3. Follow from Step 5 of the Quick Setup explanation to make basic adjustments (page 24).

To reset all of the " SETUP" settings

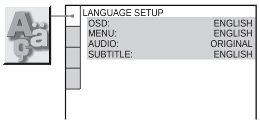
1. Select "RESET" in Step 3 and press ENTER.
2. Select "YES" using ↑/↓.
   You can also quit the process and return to the Control Menu by selecting "NO" here.
3. Press ENTER.
   All the settings explained on pages 59 to 63 return to the default settings. Do not press I/⏻ while resetting the player as it takes a few seconds to complete.

Setting the Display or Sound Track Language

(LANGUAGE SETUP)

"LANGUAGE SETUP" allows you to set various languages for the on-screen display or sound track.

Select "LANGUAGE SETUP" in the Setup Display. To use the display, see "Using the Setup Display" (page 58).


LANGUAGE SETUP
OSD: ENGLISH
MENU: ENGLISH
AUDIO: ORIGINAL
SUBTITLE: ENGLISH

◆ OSD (On-Screen Display)

Switches the display language on the screen.

◆ MENU (DVD only)

You can select the desired language for the disc's menu.

◆ AUDIO (DVD only)

Switches the language of the sound track.
When you select "ORIGINAL," the language given priority in the disc is selected.

◆ SUBTITLE (DVD only)

Switches the language of the subtitle recorded on the DVD.
When you select "AUDIO FOLLOW," the language for the subtitles changes according to the language you selected for the sound track.

Hint

If you select "OTHERS →" in "MENU," "SUBTITLE," and "AUDIO," select and enter a language code from "Language Code List" on page 70 using the number buttons.

Note

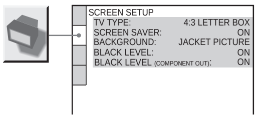
When you select a language in "MENU," "SUBTITLE," or "AUDIO" that is not recorded on the DVD, one of the recorded languages will be automatically selected.

Settings for the Display

(SCREEN SETUP)

Choose settings according to the TV to be connected.

Select "SCREEN SETUP" in the Setup Display. To use the display, see "Using the Setup Display" (page 58).
The default settings are underlined.

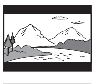

SCREEN SETUP
TV TYPE: 4:3 LETTER BOX
SCREEN SAVER: ON
BACKGROUND: JACKET PICTURE
BLACK LEVEL: ON
BLACK LEVEL (COMPONENT OUT): ON

◆ TV TYPE

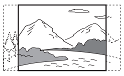
Selects the aspect ratio of the connected TV (4:3 standard or wide).

4:3 LETTER BOX	Select this when you connect a 4:3 screen TV. Displays a wide picture with bands on the upper and lower portions of the screen.
4:3 PAN SCAN	Select this when you connect a 4:3 screen TV. Automatically displays the wide picture on the entire screen and cuts off the portions that do not fit.
16:9	Select this when you connect a wide-screen TV or a TV with a wide mode function.

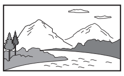
4:3 LETTER BOX



4:3 PAN SCAN



16:9



Note

Depending on the DVD, "4:3 LETTER BOX" may be selected automatically instead of "4:3 PAN SCAN" or vice versa.

◆ SCREEN SAVER

The screen saver image appears when you leave the player in pause or stop mode for 15 minutes, or when you play back a CD or DATA CD (MP3 audio) for more than 15 minutes. The screen saver will help prevent your display device from becoming damaged (ghosting). Press ▷ to turn off the screen saver.

ON	Turns on the screen saver.
OFF	Turns off the screen saver.

◆ BACKGROUND

Selects the background color or picture on the TV screen in stop mode or while playing a CD or DATA CD (MP3 audio).

JACKET PICTURE	The jacket picture (still picture) appears, but only when the jacket picture is already recorded on the disc (CD-EXTRA, etc.). If the disc does not contain a jacket picture, the "GRAPHICS" picture appears.
GRAPHICS	A preset picture stored in the player appears.
BLUE	The background color is blue.
BLACK	The background color is black.

◆ BLACK LEVEL

Selects the black level (setup level) for the video signals output from the jacks other than COMPONENT VIDEO OUT.

ON	Sets the black level of the output signal to the standard level.
OFF	Lowers the standard black level. Use this when the picture becomes too white.

◆ BLACK LEVEL (COMPONENT OUT)

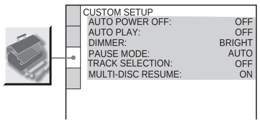
Selects the black level (setup level) for the video signals output from the COMPONENT VIDEO OUT jacks. You cannot select this when the player outputs progressive signal and the PROGRESSIVE indicator lights up in blue on the front panel.

ON	Sets the black level of the output signal to the standard level.
OFF	Lowers the standard black level. Use this when the picture becomes too white.

Custom Settings (CUSTOM SETUP)

Use this to set up playback related and other settings.

Select “CUSTOM SETUP” in the Setup Display. To use the display, see “Using the Setup Display” (page 58).
The default settings are underlined.



CUSTOM SETUP
AUTO POWER OFF: OFF
AUTO PLAY: OFF
DIMMER: BRIGHT
PAUSE MODE: AUTO
TRACK SELECTION: OFF
MULTI-DISC RESUME: ON

◆ AUTO POWER OFF

Switches the Auto Power Off setting on or off.

OFF	Switches this function off.
ON	The player enters standby mode when left in stop mode for more than 30 minutes.

◆ AUTO PLAY

Switches the Auto Play setting on or off. This function is useful when the player is connected to a timer (not supplied).

OFF	Switches this function off.
ON	Automatically starts playback when the player is turned on.

◆ DIMMER

Adjusts the lighting of the front panel display.

BRIGHT	Makes the lighting bright.
DARK	Makes the lighting dark.

➡continued

◆ PAUSE MODE (DVD only)

Selects the picture in pause mode.

AUTO	The picture, including subjects that move dynamically, is output with no jitter. Normally select this position.
FRAME	The picture, including subjects that do not move dynamically, is output in high resolution.

◆ TRACK SELECTION (DVD only)

Gives the sound track which contains the highest number of channels priority when you play a DVD on which multiple audio formats (PCM, DTS, or Dolby Digital format) are recorded.

OFF	No priority given.
AUTO	Priority given.

Notes

- When you set the item to “AUTO,” the language may change. The “TRACK SELECTION” setting has higher priority than the “AUDIO” settings in “LANGUAGE SETUP” (page 59).
- If you set “DTS” to “OFF” (page 63), the DTS sound track is not played even if you set “TRACK SELECTION” to “AUTO.”
- If PCM, DTS, and Dolby Digital sound tracks have the same number of channels, the player selects PCM, DTS, and Dolby Digital sound tracks in this order.

◆ MULTI-DISC RESUME (DVD/VIDEO CD only)

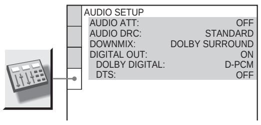
Switches the Multi-disc Resume setting on or off. Resume playback point can be stored in memory for up to 6 different DVD/VIDEO CD discs (page 28).

ON	Stores the resume settings in memory for up to six discs (The settings remain in memory even if you select OFF.)
OFF	Does not store the resume settings in memory. Playback restarts at the resume point only for the current disc in the player.

Settings for the Sound (AUDIO SETUP)

“AUDIO SETUP” allows you to set the sound according to the playback and connection conditions.

Select “AUDIO SETUP” in the Setup Display. To use the display, see “Using the Setup Display” (page 58).
The default settings are underlined.



AUDIO SETUP
AUDIO ATT: OFF
AUDIO DRC: STANDARD
DOWNMIX: DOLBY SURROUND
DIGITAL OUT: ON
DOLBY DIGITAL: D-PCM
DTS: OFF

◆ AUDIO ATT (attenuation)

If the playback sound is distorted, set this item to “ON.” The player reduces the audio output level.
This function affects the output of the LINE OUT L/R (AUDIO) jacks.

OFF	Normally, select this position.
ON	Select this when the playback sound from the speakers is distorted.

◆ AUDIO DRC (Dynamic Range Control) (DVD only)

Makes the sound clear when the volume is turned down when playing a DVD that conforms to “AUDIO DRC.” This affects the output from the following jacks:
– LINE OUT L/R (AUDIO) jacks
– DIGITAL OUT (OPTICAL or COAXIAL) jack only when “DOLBY DIGITAL” is set to “D-PCM” (page 63).

STANDARD	Normally select this position.
TV MODE	Makes the low sounds clear even if you turn the volume down.
WIDE RANGE	Gives you the feeling of being at a live performance.

◆ DOWNMIX (DVD only)

Switches the method for mixing down to 2 channels when you play a DVD which has rear sound elements (channels) or is recorded in Dolby Digital format. For details on the rear signal components, see “Displaying the audio information of the disc” (page 45). This function affects the output of the following jacks:
– LINE OUT L/R (AUDIO) jacks
– DIGITAL OUT (OPTICAL or COAXIAL) jack when “DOLBY DIGITAL” is set to “D-PCM” (page 63).

DOLBY SURROUND	Normally, select this position. Multi-channel audio signals are output to two channels for enjoying surround sounds
NORMAL	Multi-channel audio signals are downmixed to two channels for use with your stereo.

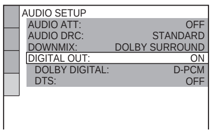
◆ DIGITAL OUT

Selects if audio signals are output via the DIGITAL OUT (OPTICAL or COAXIAL) jack.

ON	Normally select this position. When you select “ON,” see “Setting the digital output signal” for further settings.
OFF	The influence of the digital circuit upon the analog circuit is minimal.

Setting the digital output signal

Switches the method of outputting audio signals when you connect a component such as an amplifier (receiver) or MD deck with a digital input jack.
For connection details, see page 19.
Select “DOLBY DIGITAL” and “DTS” after setting “DIGITAL OUT” to “ON.”



AUDIO SETUP
AUDIO ATT: OFF
AUDIO DRC: STANDARD
DOWNMIX: DOLBY SURROUND
DIGITAL OUT: ON
DOLBY DIGITAL: D-PCM
DTS: OFF

If you connect a component that does not conform to the selected audio signal, a loud noise (or no sound) will come out from the speakers, damaging your ears or speakers.

◆ DOLBY DIGITAL (DVD only)

Selects the type of Dolby Digital signal.

D-PCM	Select this when the player is connected to an audio component without a built-in Dolby Digital decoder. You can select whether the signals conform to Dolby Surround (Pro Logic) or not by making adjustments to the “DOWNMIX” item in “AUDIO SETUP” (page 63).
DOLBY DIGITAL	Select this when the player is connected to an audio component with a built-in Dolby Digital decoder.

◆ DTS (DVD only)

Selects whether or not to output DTS signals.

OFF	Select this when the player is connected to an audio component without a built-in DTS decoder.
ON	Select this when the player is connected to an audio component with a built-in DTS decoder.

Troubleshooting

If you experience any of the following difficulties while using the player, use this troubleshooting guide to help remedy the problem before requesting repairs.
Should any problem persist, consult your nearest Sony dealer (for customers in the USA only).

Power

The power is not turned on.
- ➡ Check that the AC power cord is connected securely.

Picture

There is no picture/picture noise appears.
- ➡ Re-connect the connecting cord securely.
- ➡ The connecting cords are damaged.
- ➡ Check the connection to your TV (page 16) and switch the input selector on your TV so that the signal from the player appears on the TV screen.
- ➡ The disc is dirty or flawed.
- ➡ If the picture output from your player goes through your VCR to get to your TV or if you are connected to a combination TV/VIDEO player, the copy-protection signal applied to some DVD programs could affect picture quality. If you still experience problems even when you connect your player directly to your TV, please try connecting your player to your TV’s S VIDEO input (page 16).
- ➡ You have set the player to progressive format (the PROGRESSIVE indicator lights up in blue) eventhough your TV cannot accept the progressive signal. In this case, press the PROGRESSIVE button on the front panel until the progressive indicator turns off.
- ➡ Even if your TV is compatible with progressive format (480p) signals, the image may be affected when you set the player to progressive format. In this case, press the PROGRESSIVE button so that the PROGRESSIVE indicator turns off and the player is set to normal (interlace) format.

Even though you set the aspect ratio in “TV TYPE” of “SCREEN SETUP,” the picture does not fill the screen.
- ➡ The aspect ratio of the disc is fixed on your DVD.

Sound

There is no sound.
- ➡ Re-connect the connecting cord securely.
- ➡ The connecting cord is damaged.
- ➡ The player is connected to the wrong input jack on the amplifier (receiver) (page 21, 22, 23).
- ➡ The amplifier (receiver) input is not correctly set.
- ➡ The player is in pause mode or in Slow-motion Play mode.
- ➡ The player is in fast forward or fast reverse mode.
- ➡ If the audio signal does not come through the DIGITAL OUT (OPTICAL or COAXIAL) jack, check the audio settings (page 63).
- ➡ While playing a Super VCD on which the audio track 2 is not recorded, no sound will come out when you select “2:STEREO,” “2:1/L,” or “2:2/R.”

Sound is noisy.
- ➡ When playing a CD with DTS sound tracks, noise will come from the LINE OUT L/R (AUDIO) jacks or DIGITAL OUT (OPTICAL or COAXIAL) jack (page 26).

Sound distortion occurs.
- ➡ Set “AUDIO ATT” in “AUDIO SETUP” to “ON” (page 62).

The sound volume is low.
- ➡ The sound volume is low on some DVDs. The sound volume may improve if you set “AUDIO DRC” to “TV MODE” (page 62).
- ➡ Set “AUDIO ATT” in “AUDIO SETUP” to “OFF” (page 62).

Operation

The remote does not function.
- ➡ There are obstacles between the remote and the player.
- ➡ The distance between the remote and the player is too far.

➡ The remote is not pointed at the remote sensor on the player.
➡ The batteries in the remote are weak.

The disc does not play.

➡ The disc is turned over.
Insert the disc with the playback side facing down on the disc tray.
➡ The disc is skewed.
➡ The player cannot play certain discs (page 6).
➡ The region code on the DVD does not match the player.
➡ Moisture has condensed inside the player (page 3).
➡ The player cannot play a recorded disc that is not correctly finalized (page 6).

The MP3 audio track cannot be played (page 31).

➡ The DATA CD is not recorded in the MP3 format that conforms to ISO9660 Level 1/ Level 2 or Joliet.
➡ The MP3 audio track does not have the extension ".MP3."
➡ The data is not formatted in MP3 even though it has the extension ".MP3."
➡ The data is not MPEG1 Audio Layer 3 data.
➡ The player cannot play audio tracks in MP3PRO format.

The title of the MP3 audio album or track is not correctly displayed.

➡ The player can only display numbers and alphabet. Other characters are displayed as "*."

The disc does not start playing from the beginning.

➡ Program Play, Shuffle Play, Repeat Play, or A-B Repeat Play has been selected (page 32).
➡ Resume play has taken effect (page 28).

The player starts playing the disc automatically.

➡ The disc features an auto playback function.
➡ "AUTO PLAY" in "CUSTOM SETUP" is set to "ON" (page 61).

Playback stops automatically.

➡ While playing discs with an auto pause signal, the player stops playback at the auto pause signal.

You cannot perform some functions such as Stop, Search, Slow-motion Play, Repeat Play, Shuffle Play, or Program Play.

➡ Depending on the disc, you may not be able to do some of the operations above. See the operating manual that comes with the disc.

The language for the sound track cannot be changed.

➡ Try using the DVD's menu instead of the direct selection button on the remote (page 29).
➡ Multilingual tracks are not recorded on the DVD being played.
➡ The DVD prohibits the changing of the language for the sound track.

The subtitle language cannot be changed or turned off.

➡ Try using the DVD's menu instead of the direct selection button on the remote (page 29).
➡ Multilingual subtitles are not recorded on the DVD being played.
➡ The DVD prohibits the changing of the subtitles.

The angles cannot be changed.

➡ Try using the DVD's menu instead of the direct selection button on the remote (page 29).
➡ Multi-angles are not recorded on the DVD being played.
➡ The angle can only be changed when the "🎥" indicator lights up on the front panel display (page 9).
➡ The DVD prohibits changing of the angles.

The player does not operate properly.

➡ When static electricity, etc., causes the player to operate abnormally, unplug the player.

5 numbers or letters are displayed on the screen and on the front panel display.

➡ The self-diagnosis function was activated. (See the table on page 66.)

➡continued

The disc tray does not open and " LOCKED" appears on the front panel display.

➡ Child Lock is set (page 27).

The disc tray does not open and " TRAY LOCKED" appears on the front panel display.

➡ Contact your Sony dealer or local authorized Sony service facility.

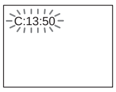
" Data error" appears on the TV screen when playing a DATA CD.

➡ The MP3 audio track you want to play is broken.
➡ The data is not MPEG1 Audio Layer 3 data.

Self-diagnosis Function

(When letters/numbers appear in the display)

When the self-diagnosis function is activated to prevent the player from malfunctioning, a five-character service number (e.g., C 13 50) with a combination of a letter and four digits appears on the screen and the front panel display. In this case, check the following table.



First three characters of the service number	Cause and/or corrective action
C 13	The disc is dirty. ➡Clean the disc with a soft cloth (page 7).
C 31	The disc is not inserted correctly. ➡Re-insert the disc correctly.
E XX (xx is a number)	To prevent a malfunction, the player has performed the self-diagnosis function. ➡Contact your nearest Sony dealer or local authorized Sony service facility and give the 5-character service number. Example: E 61 10

Glossary

Chapter (page 9)
Sections of a picture or a music feature that are smaller than titles. A title is composed of several chapters. Depending on the disc, no chapters may be recorded.

Dolby Digital (page 23, 63)
Digital audio compression technology developed by Dolby Laboratories. This technology conforms to 5.1-channel surround sound. The rear channel is stereo and there is a discrete subwoofer channel in this format. Dolby Digital provides the same 5.1 discrete channels of high quality digital audio found in Dolby Digital cinema audio systems. Good channel separation is realized because all of the channel data are recorded discretely and little deterioration is realized because all channel data processing is digital.

Dolby Surround (Pro Logic) (page 22)
Audio signal processing technology that Dolby Laboratories developed for surround sound. When the input signal contains a surround component, the Pro Logic process outputs the front, center and rear signals. The rear channel is monaural.

DTS (page 23, 63)
Digital audio compression technology that Digital Theater Systems, Inc. developed. This technology conforms to 5.1-channel surround sound. The rear channel is stereo and there is a discrete subwoofer channel in this format. DTS provides the same 5.1 discrete channels of high quality digital audio.
Good channel separation is realized because all of the channel data is recorded discretely and little deterioration is realized because all channel data processing is digital.

DVD (page 6)
A disc that contains up to 8 hours of moving pictures even though its diameter is the same as a CD.
The data capacity of a single-layer and single-sided DVD is 4.7 GB (Giga Byte), which is 7 times that of a CD. The data capacity of a double-layer and single-sided DVD is 8.5 GB, a single-layer and double-sided DVD is 9.4 GB, and double-layer and double-sided DVD is 17GB.
The picture data uses the MPEG 2 format, one of the worldwide standards of digital compression technology. The picture data is compressed to about 1/40 (average) of its original size. The DVD also uses a variable rate coding technology that changes the data to be allocated according to the status of the picture. Audio information is recorded in a multi-channel format, such as Dolby Digital, allowing you to enjoy a more real audio presence.
Furthermore, various advanced functions such as the multi-angle, multilingual, and Parental Control functions are provided with the DVD.

DVD-RW (page 6)
A DVD-RW is a recordable and rewritable disc that is the same size as a DVD VIDEO. The DVD-RW has two different modes: VR mode and Video mode. DVD-RWs created in Video mode have the same format as a DVD VIDEO, while discs created in VR (Video Recording) mode allow the contents to be programmed or edited.

DVD+RW (page 6)
A DVD+RW (plus RW) is a recordable and rewritable disc. DVD+RWs use a recording format that is comparable to the DVD VIDEO format.

Film based software, Video based software (page 18)
DVDs can be classified as Film based or Video based software. Film based DVDs contain the same images (24 frames per second) that are shown at movie theaters. Video based DVDs, such as television dramas or sit-coms, displays images at 30 frames (or 60 fields) per second.

Index (CD)/Video Index (VIDEO CD) (page 12)
A number that divides a track into sections to easily locate the point you want on a CD or VIDEO CD. Depending on the disc, no index may be recorded.

➡continued

Interlace format (page 18)
Interlace format shows every other line of an image as a single "field" and is the standard method for displaying images on television. The even number field shows the even numbered lines of an image, and the odd numbered field shows the odd numbered lines of an image.

Progressive format (page 18)
Compared to the Interlace format that alternately shows every other line of an image (field) to create one frame, the Progressive format shows the entire image at once as a single frame. This means that while the Interlace format can show 30 frames/60 fields in one second, the Progressive format can show 60 frames in one second. The overall picture quality increases and still images, text, and horizontal lines appear sharper. This player is compatible with the 480 progressive format.

Scene (page 9)
On a VIDEO CD with PBC (playback control) functions, the menu screens, moving pictures and still pictures are divided into sections called "scenes."

Title (page 9)
The longest section of a picture or music feature on a DVD, movie, etc., in video software, or the entire album in audio software.

Track (page 9)
Sections of a picture or a music feature on a CD or VIDEO CD (the length of a song).

Language Code List

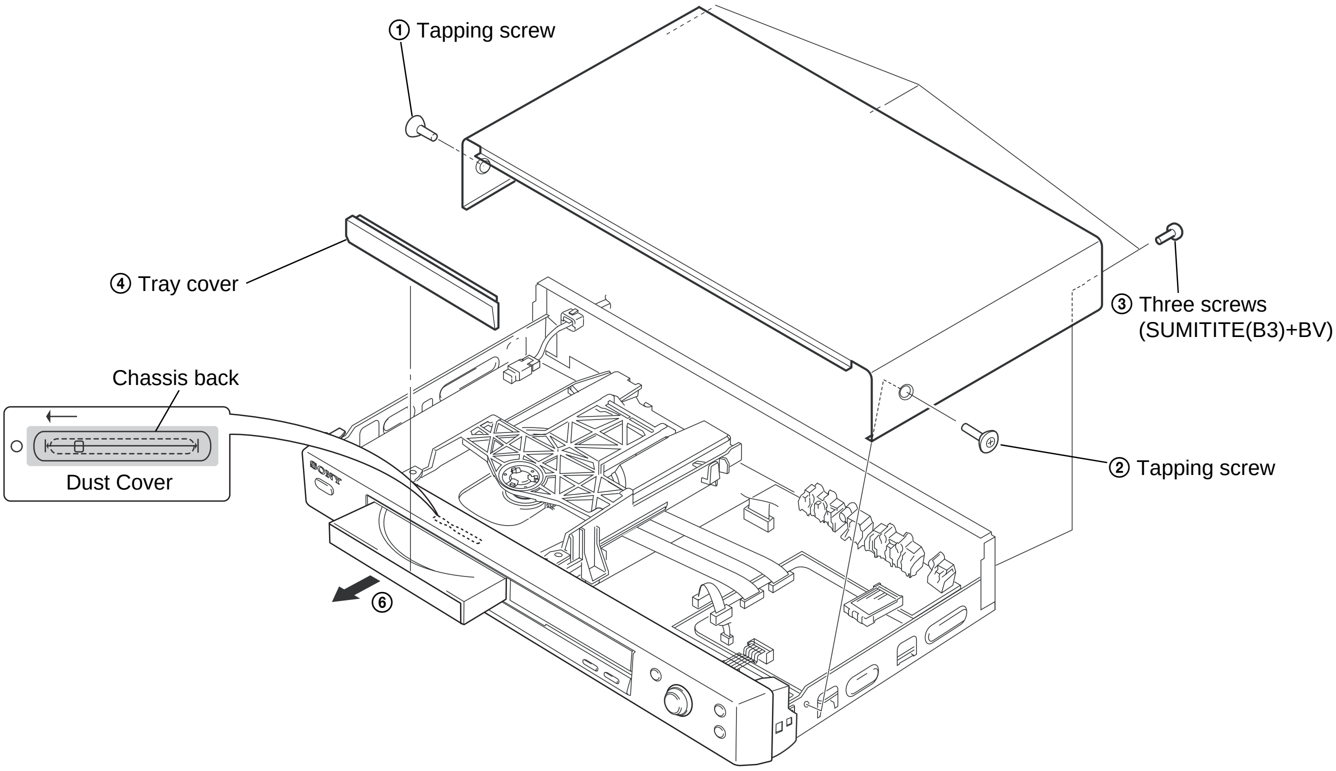
For details, see pages 45, 48, 59.
The language spellings conform to the ISO 639: 1988 (E/F) standard.

Code	Language
1027	Afar
1028	Abkhazian
1032	Afrikaans
1039	Amharic
1044	Arabic
1045	Assamese
1051	Aymara
1052	Azerbaijani
1053	Bashkir
1057	Byelorussian
1059	Bulgarian
1060	Bihari
1061	Bislama
1066	Bengali; Bangla
1067	Tibetan
1070	Breton
1079	Catalan
1093	Corsican
1097	Czech
1103	Welsh
1105	Danish
1109	German
1130	Bhutani
1142	Greek
1144	English
1145	Esperanto
1149	Spanish
1150	Estonian
1151	Basque
1157	Persian
1165	Finnish
1166	Fiji
1171	Faroese
1174	French
1181	Frisian
1183	Irish
1186	Scots Gaelic
1194	Galician
1196	Guarani
1203	Gujarati
1209	Hausa
1217	Hindi
1226	Croatian
1229	Hungarian
1233	Armenian
1235	Interlingua
1239	Interlingue
1245	Inupiak
1248	Indonesian
1253	Icelandic
1254	Italian
1257	Hebrew
1261	Japanese
1269	Yiddish
1283	Javanese
1287	Georgian
1297	Kazakh
1298	Greenlandic
1299	Cambodian
1300	Kannada
1301	Korean
1305	Kashmiri
1307	Kurdish
1311	Kirghiz
1313	Latin
1326	Lingala
1327	Laothian
1332	Lithuanian
1334	Latvian; Lettish
1345	Malagasy
1347	Maori
1349	Macedonian
1350	Malayalam
1352	Mongolian
1353	Moldavian
1356	Marathi
1357	Malay
1358	Maltese
1363	Burmese
1365	Nauru
1369	Nepali
1376	Dutch
1379	Norwegian
1393	Occitan
1403	(Afan)Oromo
1408	Oriya
1417	Punjabi
1428	Polish
1435	Pashto; Pushto
1436	Portuguese
1463	Quechua
1481	Rhaeto-Romance
1482	Kirundi
1483	Romanian
1489	Russian
1491	Kinyarwanda
1495	Sanskrit
1498	Sindhi
1501	Sangho
1502	Serbo-Croatian
1503	Singhalese
1505	Slovak
1506	Slovenian
1507	Samoan
1508	Shona
1509	Somali
1511	Albanian
1512	Serbian
1513	Siswati
1514	Sesotho
1515	Sundanese
1516	Swedish
1517	Swahili
1521	Tamil
1525	Telugu
1527	Tajik
1528	Thai
1529	Tigrinya
1531	Turkmen
1532	Tagalog
1534	Setswana
1535	Tonga
1538	Turkish
1539	Tsonga
1540	Tatar
1543	Twi
1557	Ukrainian
1564	Urdu
1572	Uzbek
1581	Vietnamese
1587	Volapük
1613	Wolof
1632	Xhosa
1665	Yoruba
1684	Chinese
1697	Zulu
1703	Not specified

SECTION 2
DISASSEMBLY

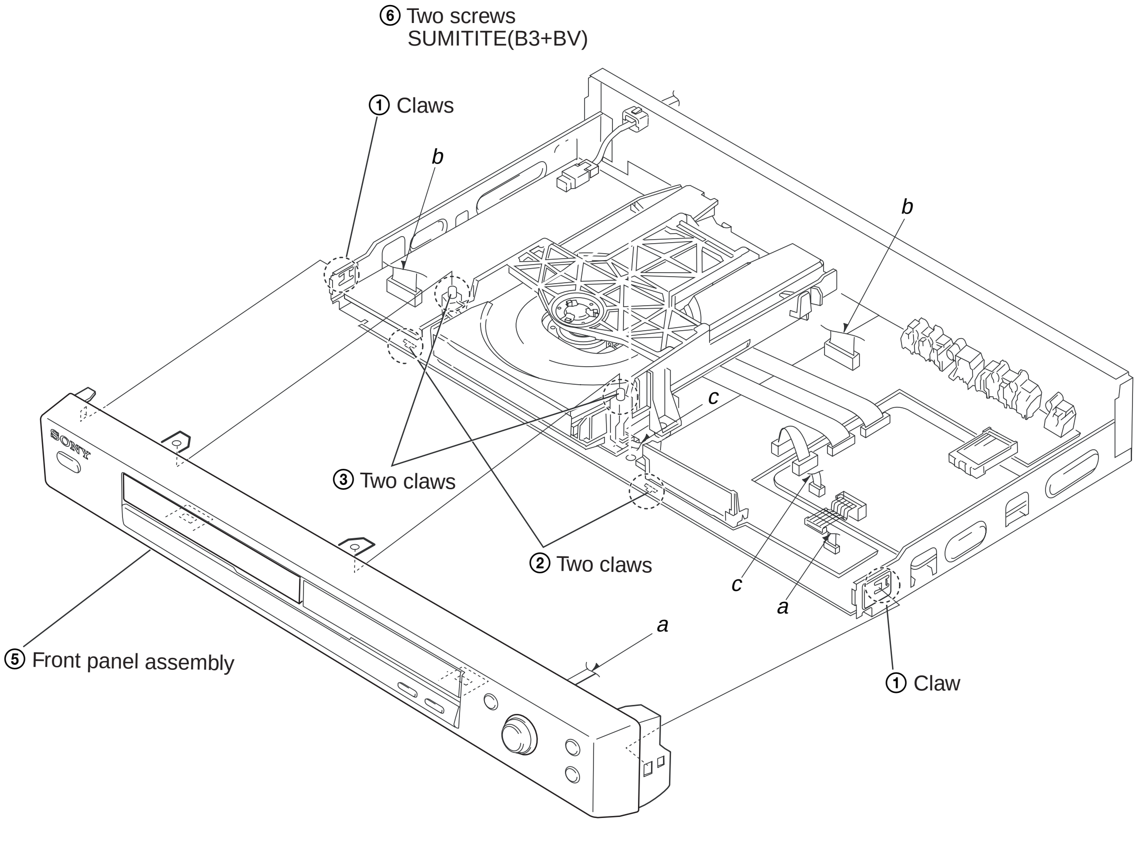
Note: Follow the disassembly procedure in the numerical order given.

2-1. UPPER CASE



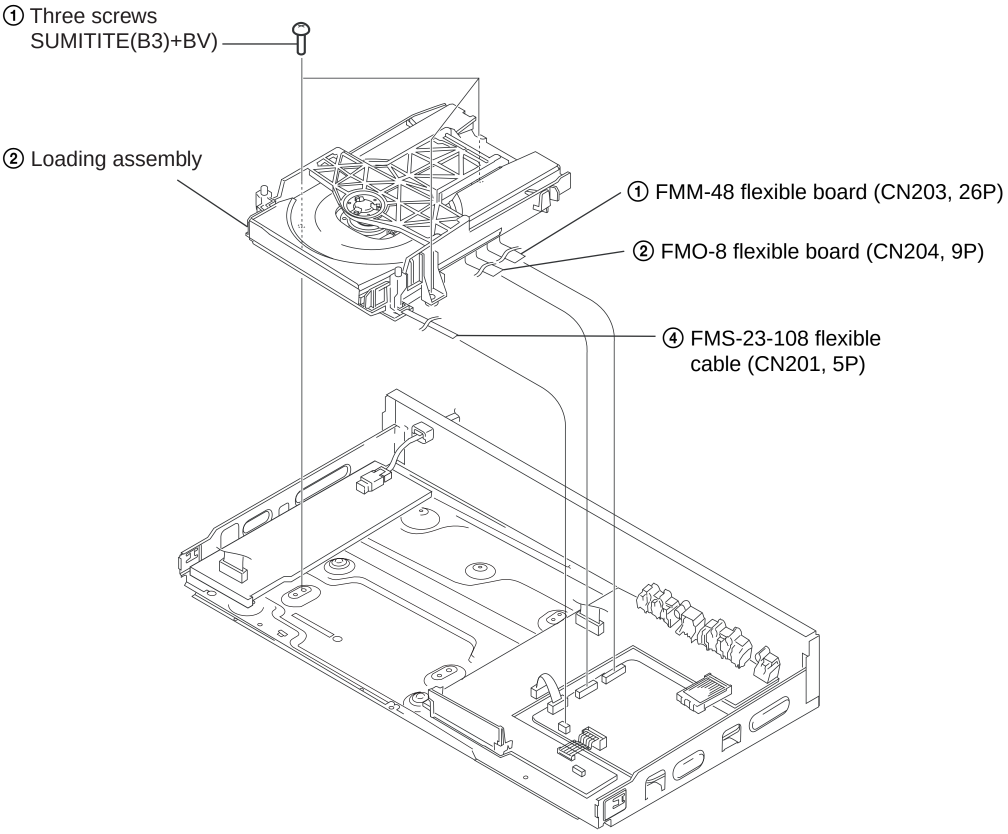
① Tapping screw
④ Tray cover
③ Three screws (SUMITITE(B3)+BV)
Chassis back
Dust Cover
② Tapping screw
⑥

2-2. FRONT PANEL ASSEMBLY

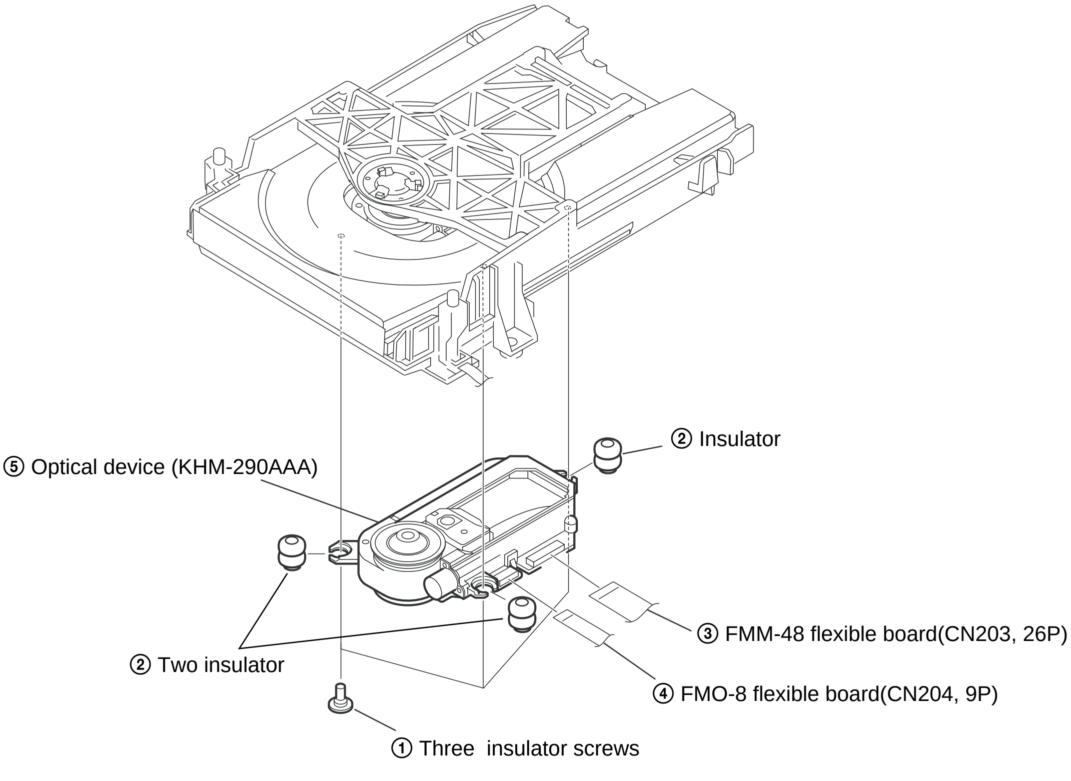


⑥ Two screws SUMITITE(B3+BV)
① Claws
b
b
c
③ Two claws
② Two claws
c
a
a
⑤ Front panel assembly
① Claw

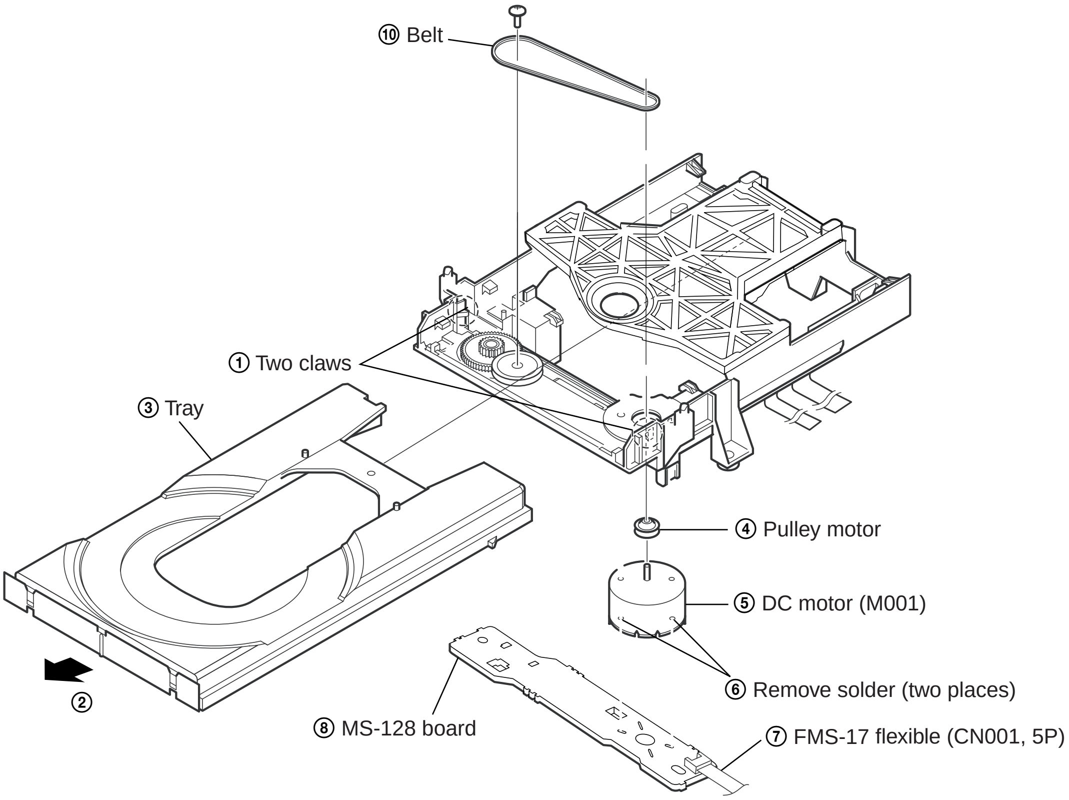
2-3. LOADING ASSEMBLY


① Three screws
SUMITITE(B3)+BV)
② Loading assembly
① FMM-48 flexible board (CN203, 26P)
② FMO-8 flexible board (CN204, 9P)
④ FMS-23-108 flexible
cable (CN201, 5P)

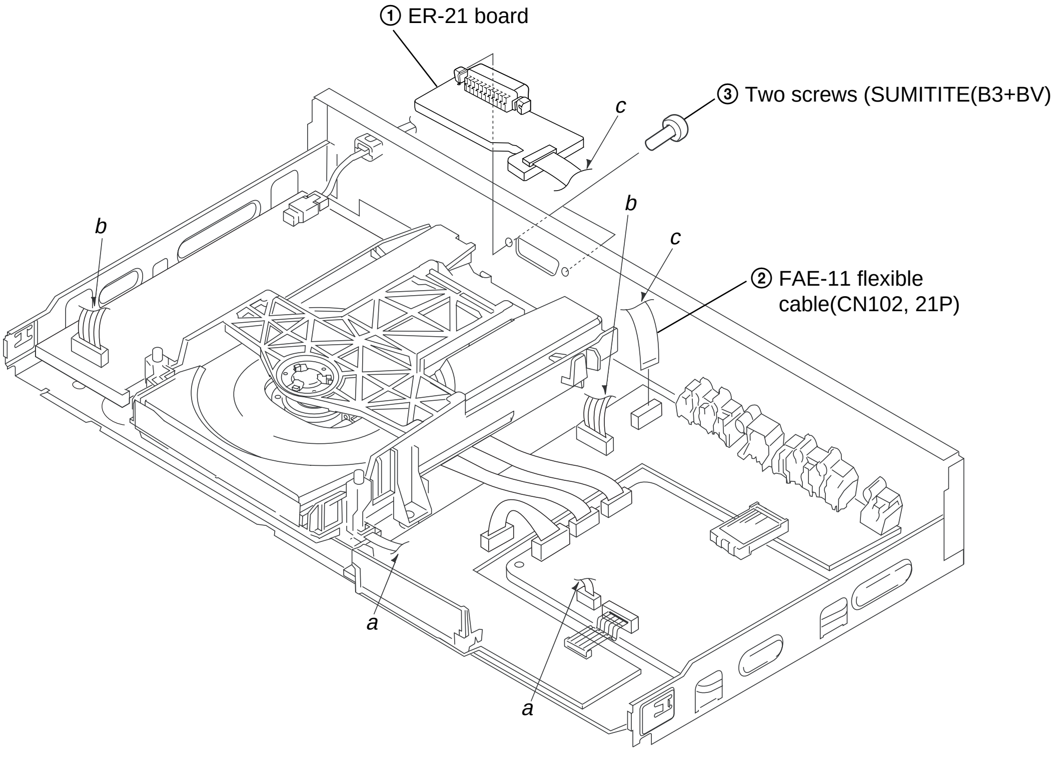
2-4. OPTICAL DEVICE (KHM-290AAA)


② Insulator
⑤ Optical device (KHM-290AAA)
③ FMM-48 flexible board(CN203, 26P)
② Two insulator
④ FMO-8 flexible board(CN204, 9P)
① Three insulator screws

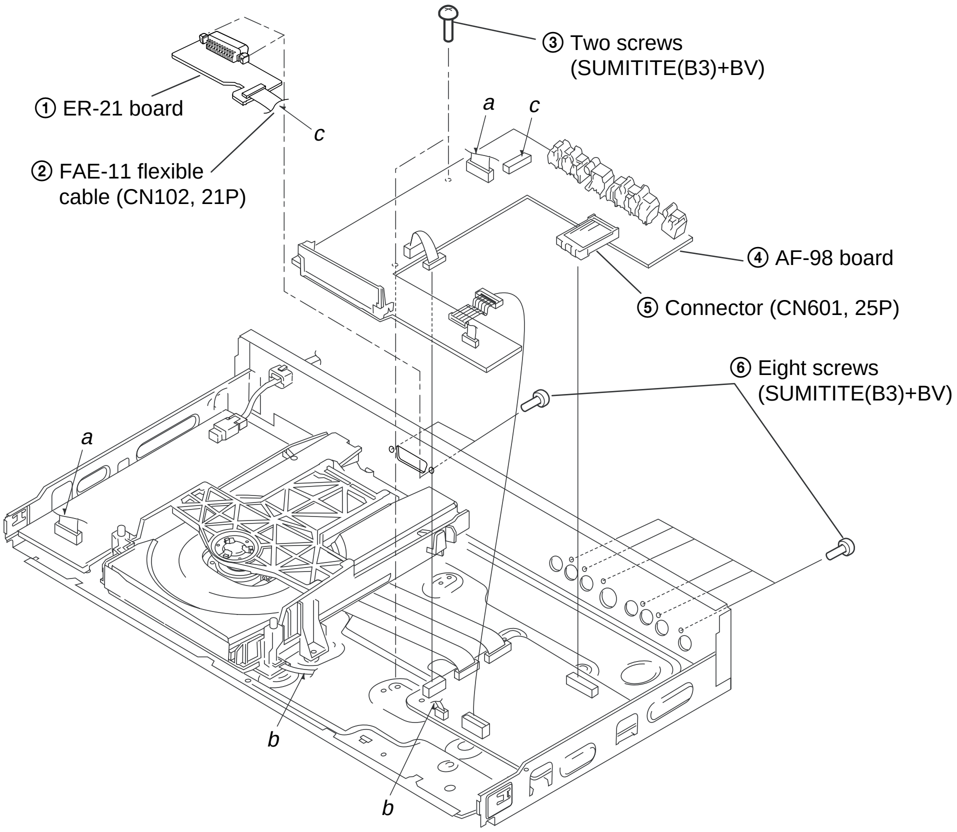
2-5. DC MOTOR and MS128 BOARD


⑩ Belt
① Two claws
③ Tray
④ Pulley motor
⑤ DC motor (M001)
⑥ Remove solder (two places)
②
⑧ MS-128 board
⑦ FMS-17 flexible (CN001, 5P)

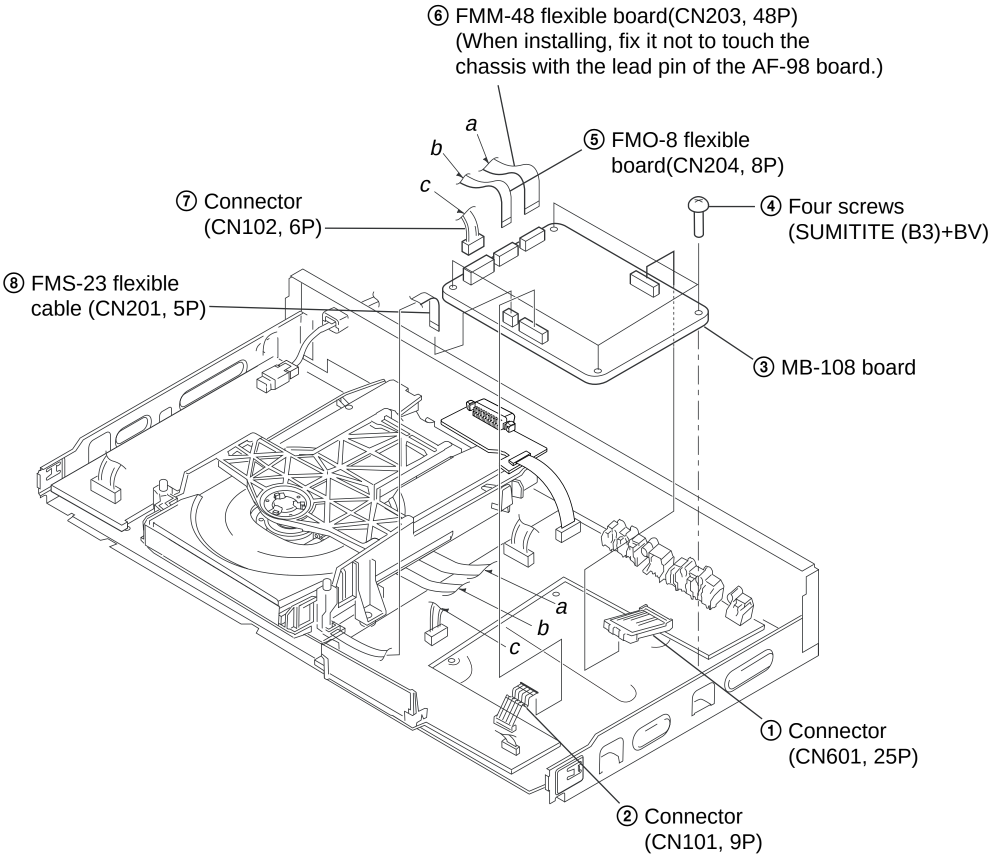
2-6. ER-21 BOARD


① ER-21 board
③ Two screws (SUMITITE(B3+BV)
c
b
b
c
② FAE-11 flexible
cable(CN102, 21P)
a
a

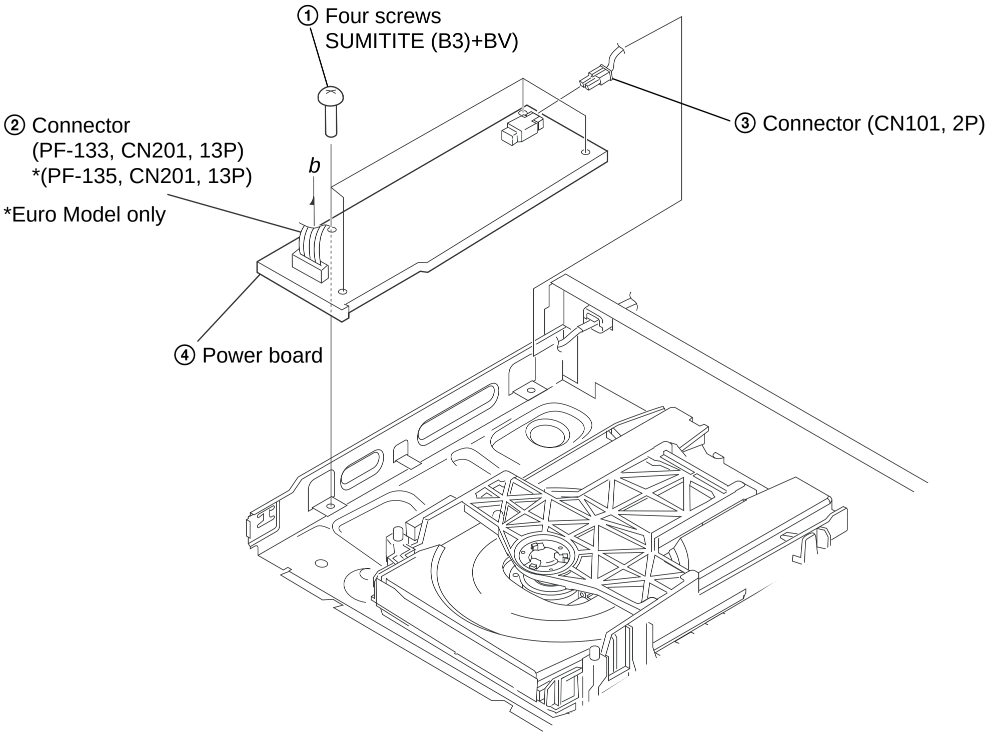
2-7. AF-098 BOARD


③ Two screws
(SUMITITE(B3)+BV)
① ER-21 board
a
c
c
② FAE-11 flexible
cable (CN102, 21P)
④ AF-98 board
⑤ Connector (CN601, 25P)
⑥ Eight screws
(SUMITITE(B3)+BV)
a
b
b

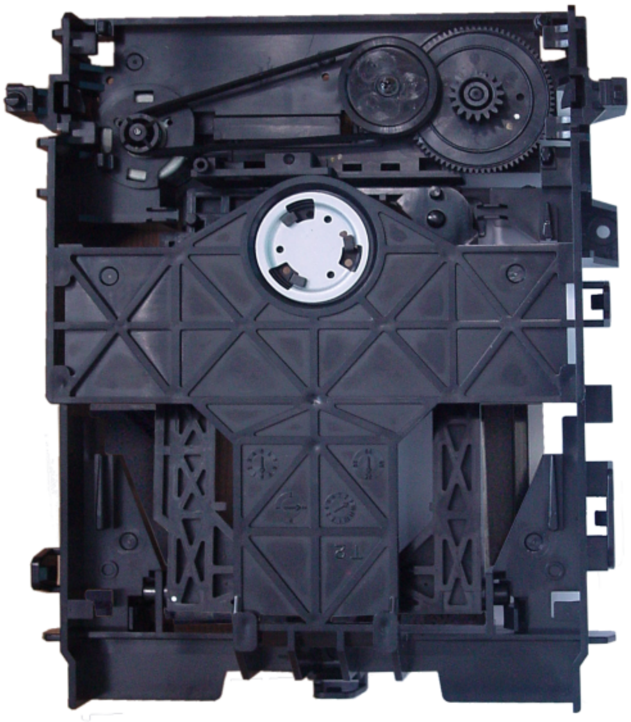
2-8. MB-108 BOARD


⑥ FMM-48 flexible board(CN203, 48P)
(When installing, fix it not to touch the
chassis with the lead pin of the AF-98 board.)
a
b
⑤ FMO-8 flexible
board(CN204, 8P)
c
⑦ Connector
(CN102, 6P)
④ Four screws
(SUMITITE (B3)+BV)
⑧ FMS-23 flexible
cable (CN201, 5P)
③ MB-108 board
a
b
c
① Connector
(CN601, 25P)
② Connector
(CN101, 9P)

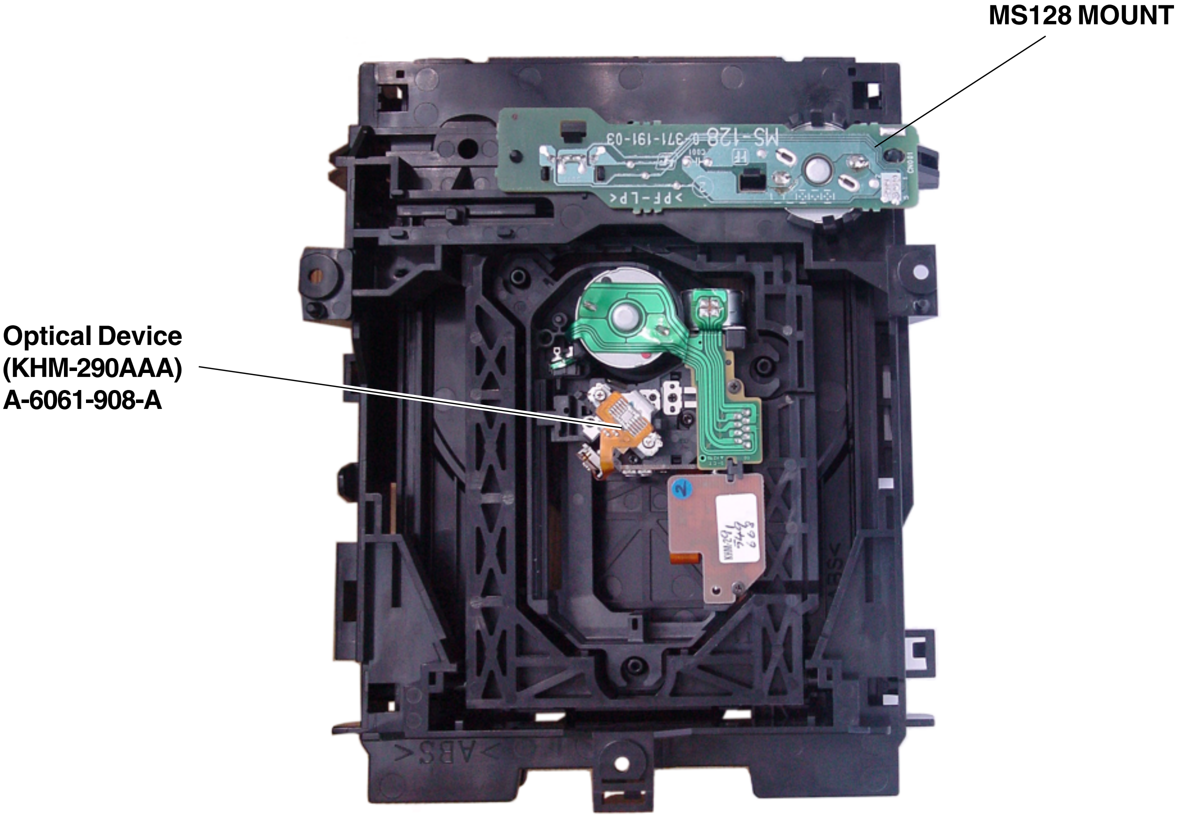
2-9. SWITCHING REGULATOR


① Four screws
SUMITITE (B3)+BV)
② Connector
(PF-133, CN201, 13P)
*(PF-135, CN201, 13P)
*Euro Model only
b
③ Connector (CN101, 2P)
④ Power board

2-10. INTERNAL VIEWS

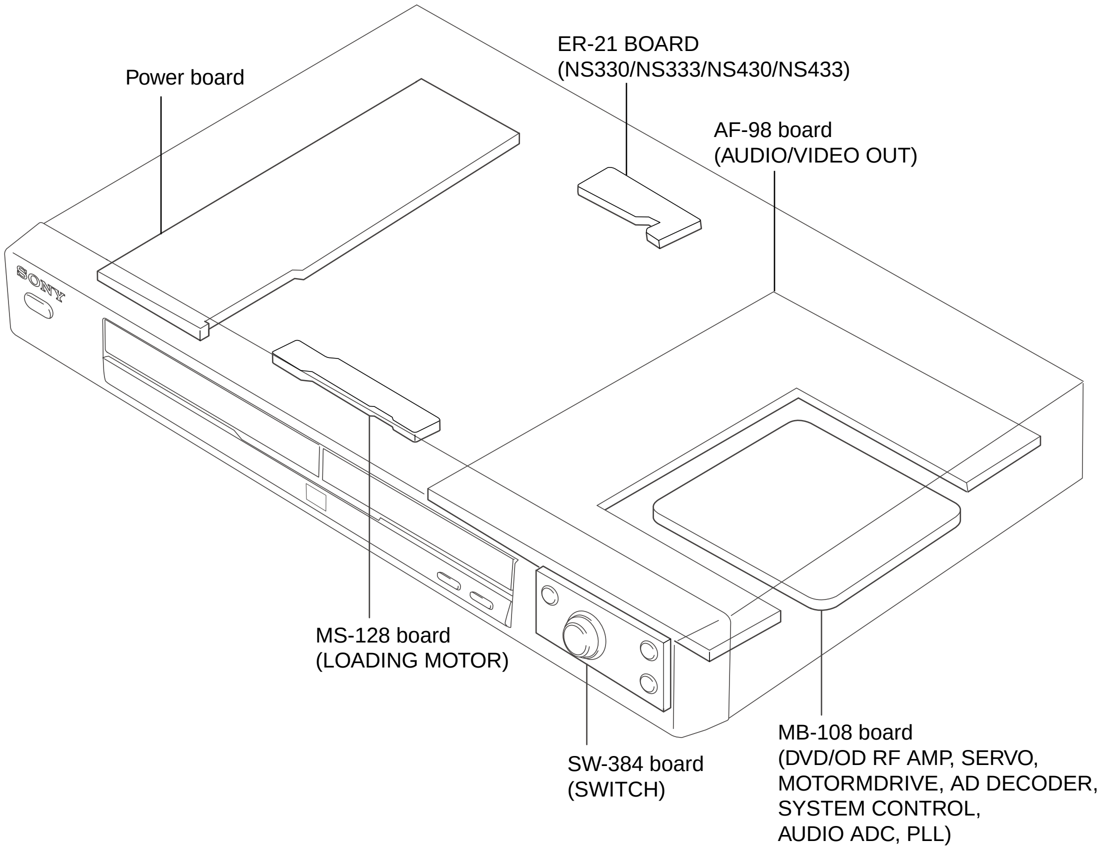


TOP VIEW


MS128 MOUNT
Optical Device
(KHM-290AAA)
A-6061-908-A

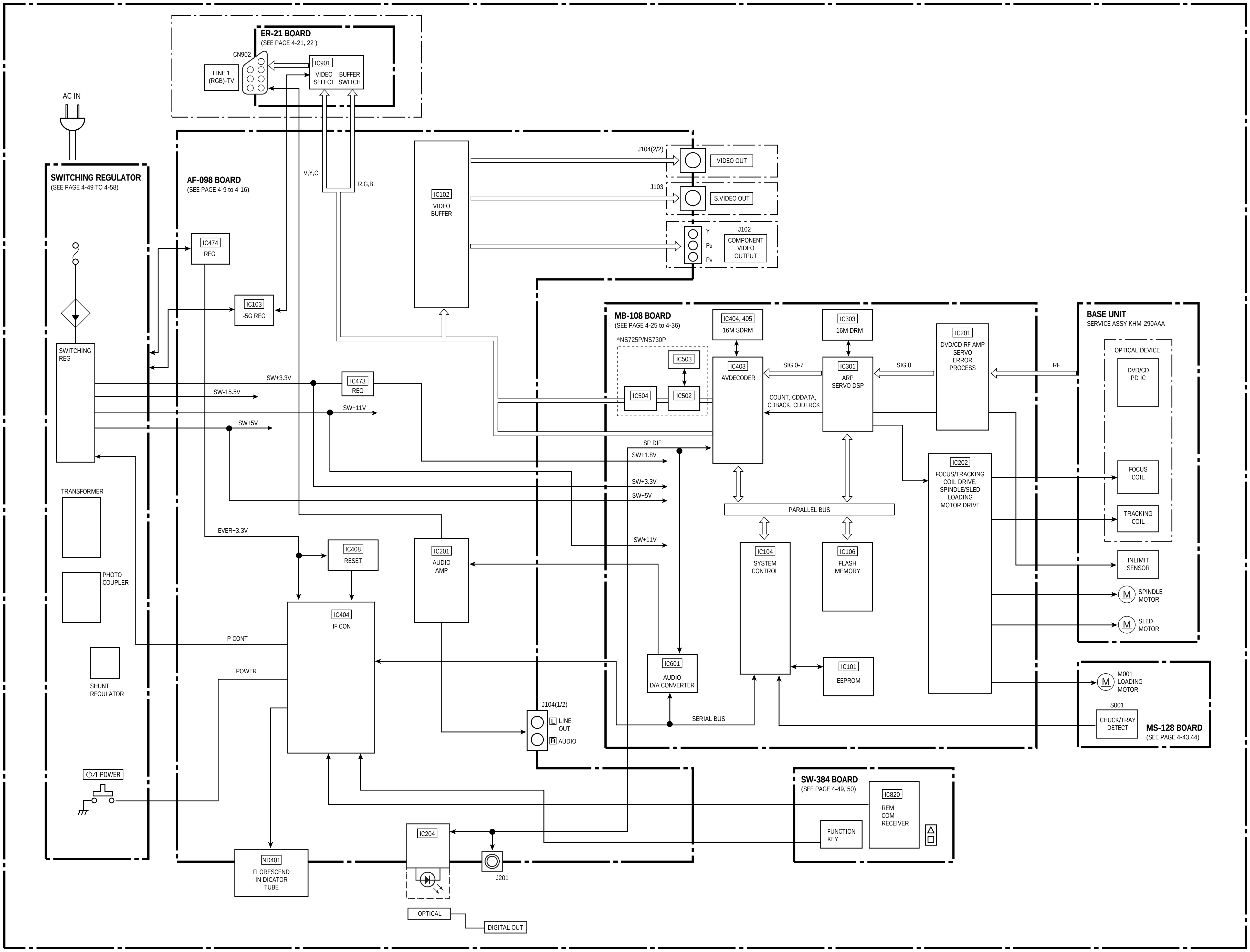
BOTTOM VIEW

2-11. CIRCUIT BOARDS LOCATION

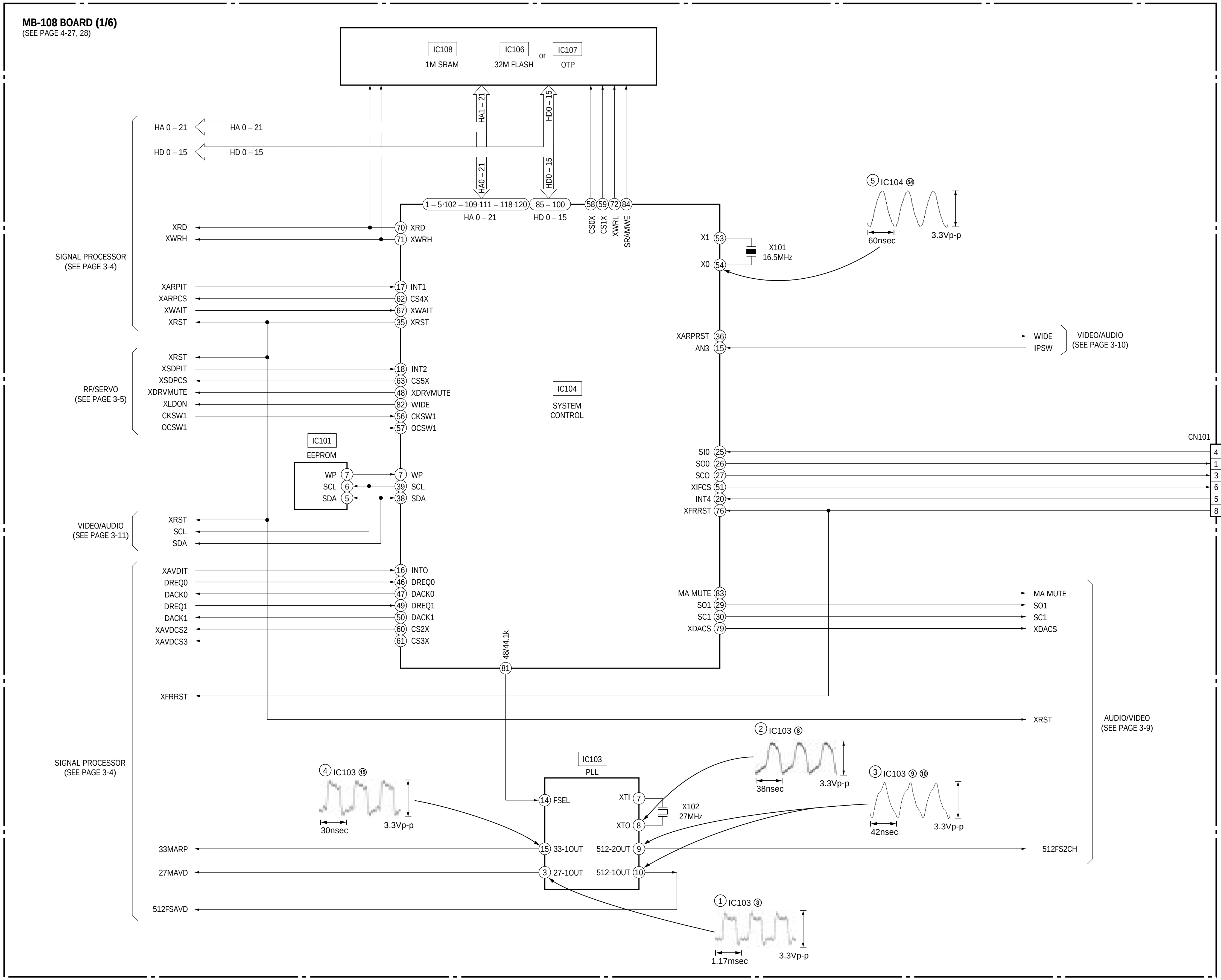

Power board
ER-21 BOARD
(NS330/NS333/NS430/NS433)
AF-98 board
(AUDIO/VIDEO OUT)
SONY
MS-128 board
(LOADING MOTOR)
SW-384 board
(SWITCH)
MB-108 board
(DVD/OD RF AMP, SERVO,
MOTORMDRIVE, AD DECODER,
SYSTEM CONTROL,
AUDIO ADC, PLL)

SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM

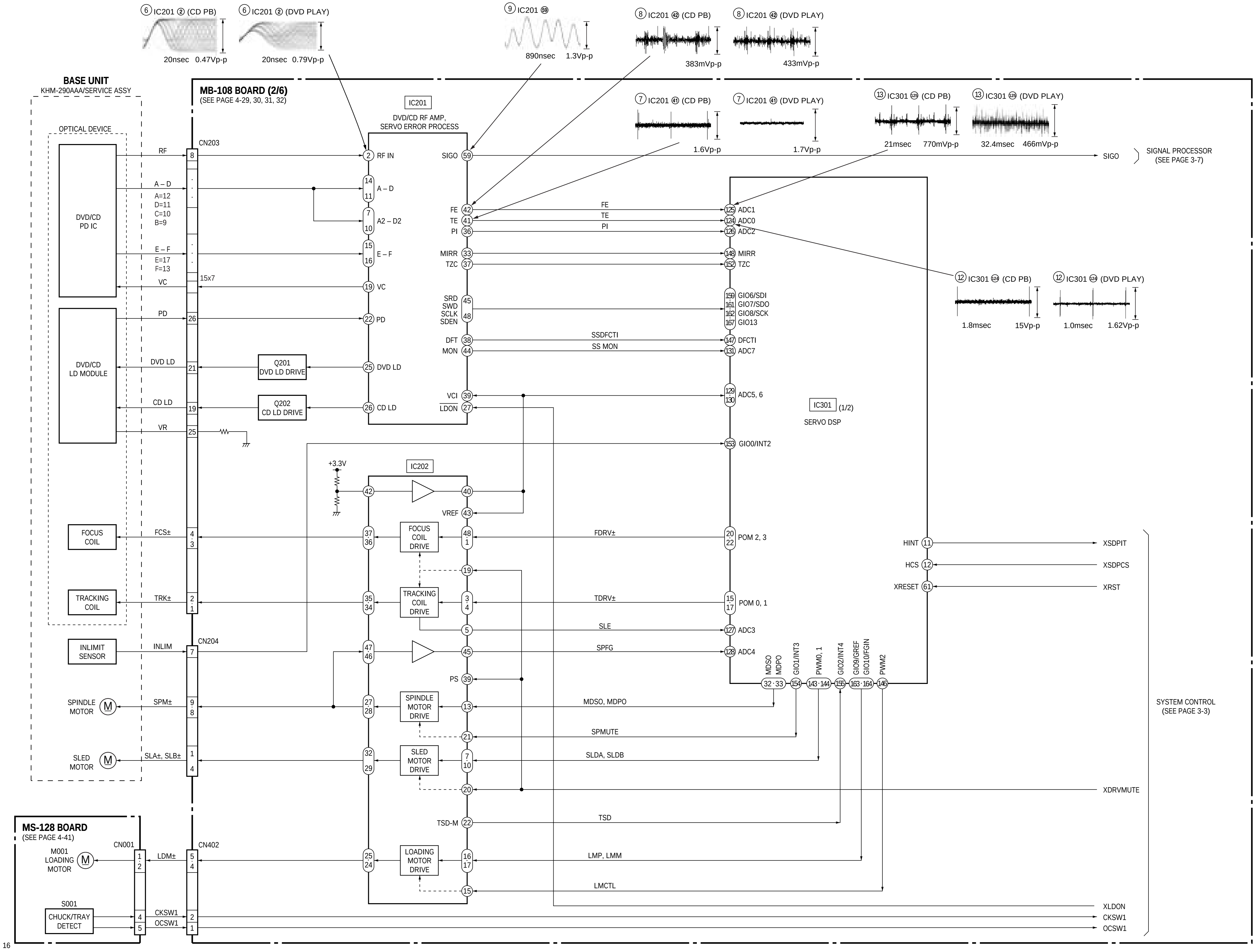

ER-21 BOARD
(SEE PAGE 4-21, 22)
CN902
LINE 1 (RGB)-TV
IC901
VIDEO SELECT
BUFFER SWITCH
AC IN
SWITCHING REGULATOR
(SEE PAGE 4-49 TO 4-58)
AF-098 BOARD
(SEE PAGE 4-9 to 4-16)
V,Y,C
R,G,B
IC102
VIDEO BUFFER
J104(2/2)
VIDEO OUT
J103
S.VIDEO OUT
Y
PB
PR
J102
COMPONENT VIDEO OUTPUT
IC474
REG
IC103
-5G REG
SWITCHING REG
SW+3.3V
SW-15.5V
SW+11V
SW+5V
IC473
REG
MB-108 BOARD
(SEE PAGE 4-25 to 4-36)
*NS725P/NS730P
IC404, 405
16M SDRM
IC303
16M DRM
IC503
IC504
IC502
IC403
AVDECODER
SIG 0-7
IC301
ARP SERVO DSP
SIG 0
IC201
DVD/CD RF AMP SERVO ERROR PROCESS
RF
COUNT, CDDATA, CDBACK, CDDLRCK
SP DIF
SW+1.8V
SW+3.3V
SW+5V
SW+11V
PARALLEL BUS
IC202
FOCUS/TRACKING COIL DRIVE, SPINDLE/SLED LOADING MOTOR DRIVE
BASE UNIT
SERVICE ASSY KHM-290AAA
OPTICAL DEVICE
DVD/CD PD IC
FOCUS COIL
TRACKING COIL
INLIMIT SENSOR
M SPINDLE MOTOR
M SLED MOTOR
M001
M LOADING MOTOR
S001
CHUCK/TRAY DETECT
MS-128 BOARD
(SEE PAGE 4-43,44)
TRANSFORMER
PHOTO COUPLER
SHUNT REGULATOR
EVER+3.3V
IC408
RESET
IC201
AUDIO AMP
IC104
SYSTEM CONTROL
IC106
FLASH MEMORY
IC404
IF CON
P CONT
POWER
IC601
AUDIO D/A CONVERTER
IC101
EEPROM
SERIAL BUS
J104(1/2)
L LINE OUT
R AUDIO
⏻/I POWER
SW-384 BOARD
(SEE PAGE 4-49, 50)
IC820
REM COM RECEIVER
FUNCTION KEY
IC204
J201
ND401
FLORESCEND IN DICATOR TUBE
OPTICAL
DIGITAL OUT

3-2. SYSTEM CONTROL BLOCK DIAGRAM

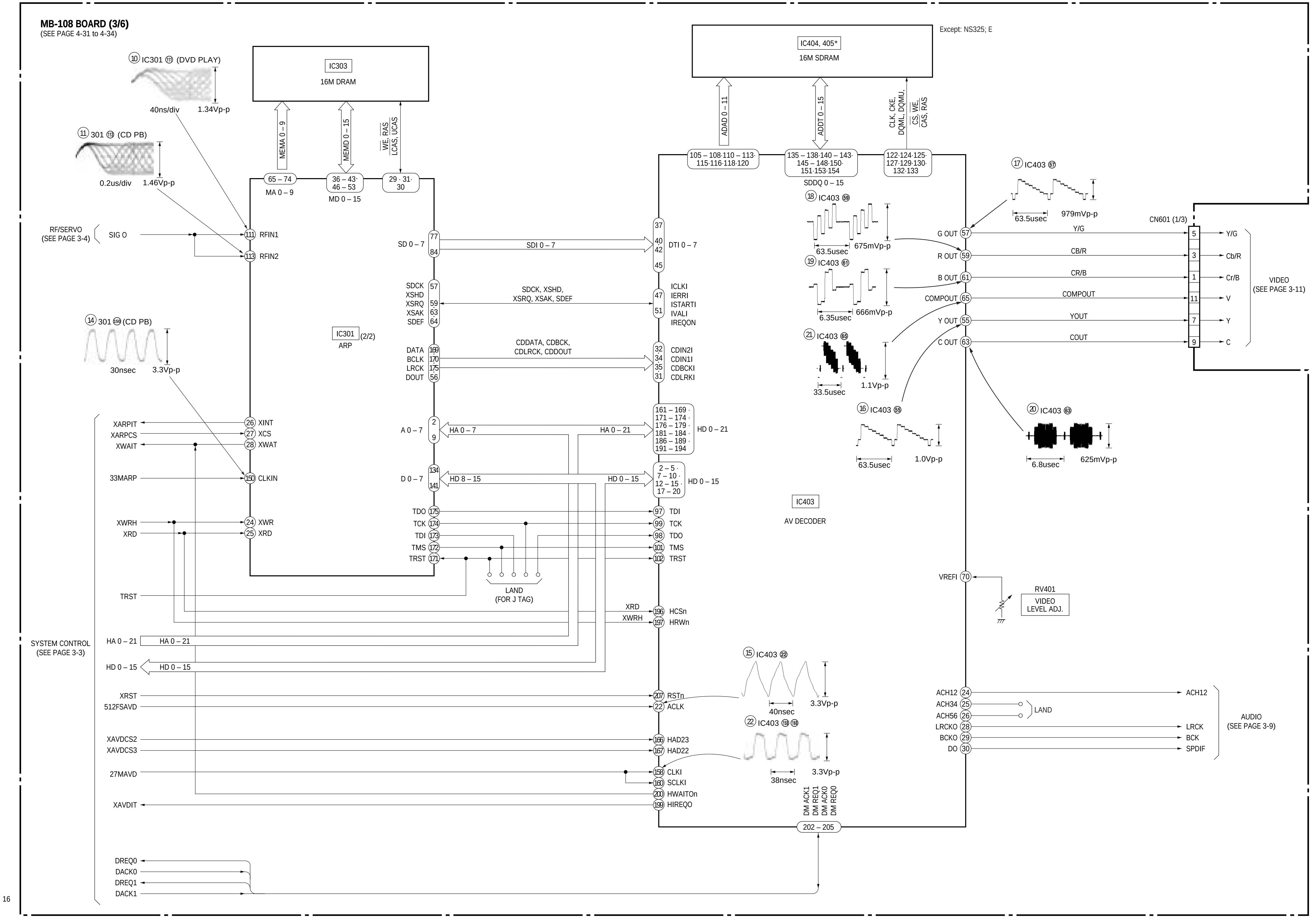

MB-108 BOARD (1/6)
(SEE PAGE 4-27, 28)
IC108
1M SRAM
IC106
32M FLASH
or
IC107
OTP
HA1 – 21
HD0 – 15
HA 0 – 21
HD 0 – 15
HA0 – 21
HD0 – 15
1 – 5·102 – 109·111 – 118·120
85 – 100
58 59 72 84
CS0X
CS1X
XWRL
SRAMWE
SIGNAL PROCESSOR
(SEE PAGE 3-4)
XRD
XWRH
70 XRD
71 XWRH
XARPIT
XARPCS
XWAIT
XRST
17 INT1
62 CS4X
67 XWAIT
35 XRST
RF/SERVO
(SEE PAGE 3-5)
XRST
XSDPIT
XSDPCS
XDRVMUTE
XLDON
CKSW1
OCSW1
18 INT2
63 CS5X
48 XDRVMUTE
82 WIDE
56 CKSW1
57 OCSW1
IC101
EEPROM
WP 7
SCL 6
SDA 5
7 WP
39 SCL
38 SDA
VIDEO/AUDIO
(SEE PAGE 3-11)
XRST
SCL
SDA
XAVDIT
DREQ0
DACK0
DREQ1
DACK1
XAVDCS2
XAVDCS3
16 INT0
46 DREQ0
47 DACK0
49 DREQ1
50 DACK1
60 CS2X
61 CS3X
48/44.1k
81
IC104
SYSTEM
CONTROL
X1 53
X0 54
X101
16.5MHz
5 IC104 54
60nsec
3.3Vp-p
XARPRST 36
AN3 15
WIDE
IPSW
VIDEO/AUDIO
(SEE PAGE 3-10)
CN101
SI0 25
SO0 26
SC0 27
XIFCS 51
INT4 20
XFRRST 76
4 1 3 6 5 8
SI0
SO0
SC0
XIFCS
XIFBUSY
XFRRST
INTERFACE
CONTROL
(SEE PAGE 3-7)
MA MUTE 83
SO1 29
SC1 30
XDACS 79
MA MUTE
SO1
SC1
XDACS
XFRRST
XRST
AUDIO/VIDEO
(SEE PAGE 3-9)
SIGNAL PROCESSOR
(SEE PAGE 3-4)
2 IC103 8
38nsec
3.3Vp-p
IC103
PLL
4 IC103 15
30nsec
3.3Vp-p
14 FSEL
XTI 7
XTO 8
X102
27MHz
3 IC103 9 10
42nsec
3.3Vp-p
33MARP
15 33-1OUT
512-2OUT 9
512FS2CH
27MAVD
3 27-1OUT
512-1OUT 10
512FSAVD
1 IC103 3
1.17msec
3.3Vp-p

05

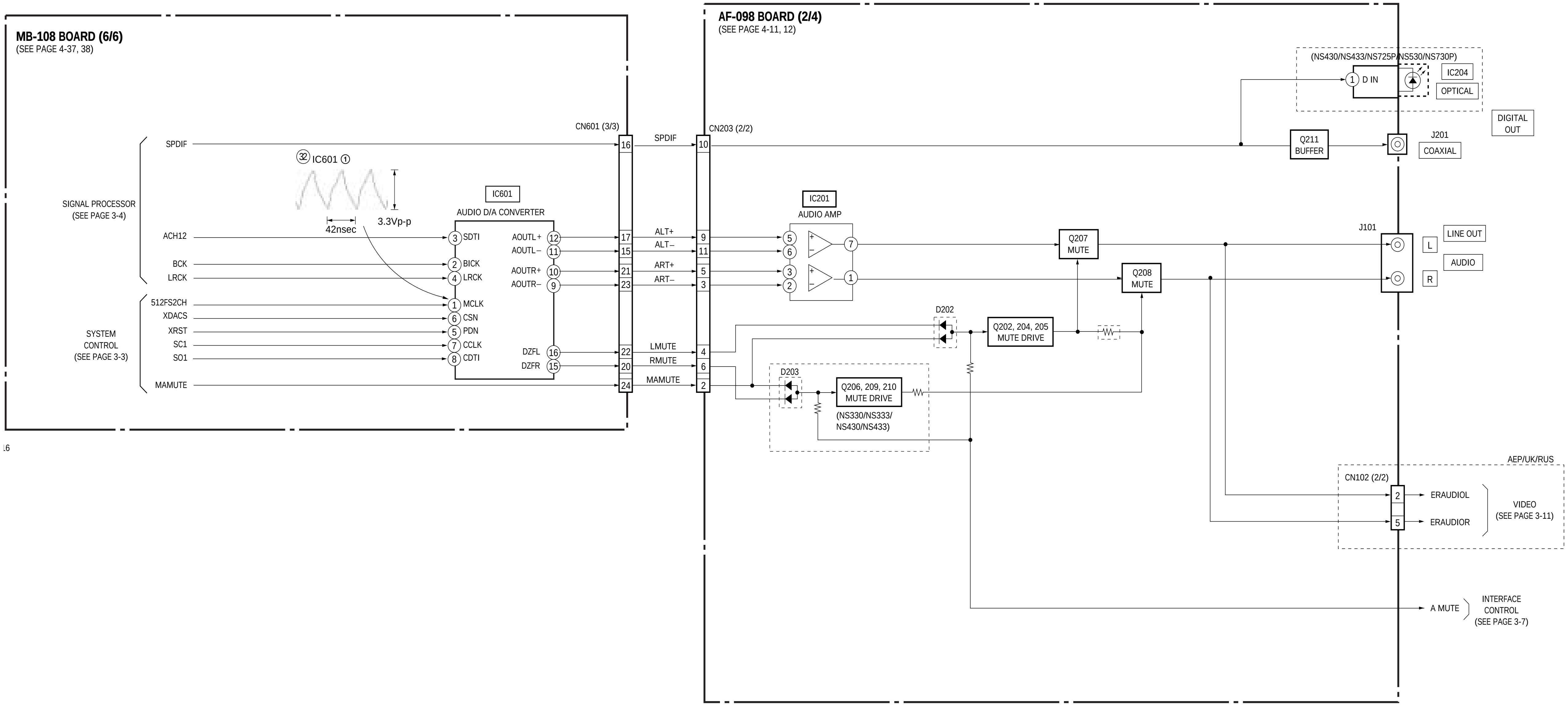
3-3. RF/SERVO BLOCK DIAGRAM


⑥ IC201 ② (CD PB)
20nsec 0.47Vp-p
⑥ IC201 ② (DVD PLAY)
20nsec 0.79Vp-p
⑨ IC201 (59)
890nsec 1.3Vp-p
⑧ IC201 (42) (CD PB)
383mVp-p
⑧ IC201 (42) (DVD PLAY)
433mVp-p
⑦ IC201 (41) (CD PB)
1.6Vp-p
⑦ IC201 (41) (DVD PLAY)
1.7Vp-p
⑬ IC301 (125) (CD PB)
21msec 770mVp-p
⑬ IC301 (125) (DVD PLAY)
32.4msec 466mVp-p
⑫ IC301 (124) (CD PB)
1.8msec 15Vp-p
⑫ IC301 (124) (DVD PLAY)
1.0msec 1.62Vp-p
BASE UNIT
KHM-290AAA/SERVICE ASSY
OPTICAL DEVICE
DVD/CD PD IC
DVD/CD LD MODULE
FOCUS COIL
TRACKING COIL
INLIMIT SENSOR
SPINDLE MOTOR
SLED MOTOR
RF
A – D
A=12
D=11
C=10
B=9
E – F
E=17
F=13
VC
PD
DVD LD
CD LD
VR
FCS±
TRK±
INLIM
SPM±
SLA±, SLB±
MB-108 BOARD (2/6)
(SEE PAGE 4-29, 30, 31, 32)
CN203
15x7
CN204
IC201
DVD/CD RF AMP, SERVO ERROR PROCESS
RF IN
A – D
A2 – D2
E – F
VC
PD
DVD LD
CD LD
SIGO
FE
TE
PI
MIRR
TZC
SRD
SWD
SCLK
SDEN
DFT
MON
VCI
LDON
Q201
DVD LD DRIVE
Q202
CD LD DRIVE
+3.3V
IC202
VREF
FOCUS COIL DRIVE
TRACKING COIL DRIVE
SPINDLE MOTOR DRIVE
SLED MOTOR DRIVE
LOADING MOTOR DRIVE
PS
TSD-M
FE
TE
PI
SSDFCTI
SS MON
FDRV±
TDRV±
SLE
SPFG
MDSO, MDPO
SPMUTE
SLDA, SLDB
TSD
LMP, LMM
LMCTL
IC301 (1/2)
SERVO DSP
ADC1
ADC0
ADC2
MIRR
TZC
GIO6/SDI
GIO7/SDO
GIO8/SCK
GIO13
DFCTI
ADC7
ADC5, 6
GIO0/INT2
POM 2, 3
POM 0, 1
ADC3
ADC4
MDSO
MDPO
GIO1/INT3
PWM0, 1
GIO2/INT4
GIO9/GREF
GIO10/FGIN
PWM2
HINT
HCS
XRESET
SIGO
SIGNAL PROCESSOR
(SEE PAGE 3-7)
XSDPIT
XSDPCS
XRST
XDRVMUTE
XLDON
CKSW1
OCSW1
SYSTEM CONTROL
(SEE PAGE 3-3)
MS-128 BOARD
(SEE PAGE 4-41)
CN001
M001
LOADING MOTOR
S001
CHUCK/TRAY DETECT
LDM±
CKSW1
OCSW1
CN402
16

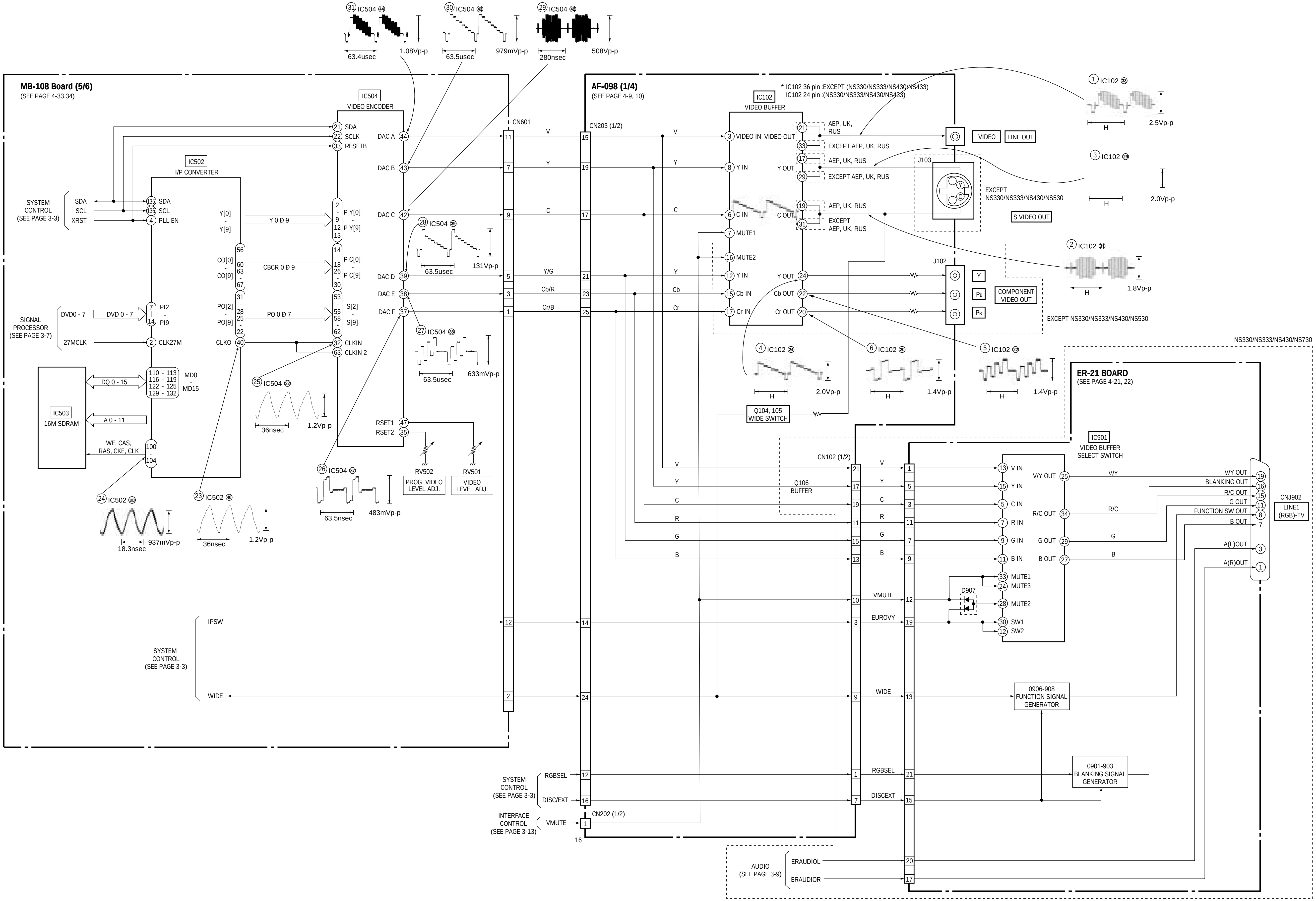
3-4. SIGNAL PROCESSOR BLOCK DIAGRAM


MB-108 BOARD (3/6)
(SEE PAGE 4-31 to 4-34)
⑩ IC301 ⑪ (DVD PLAY)
40ns/div 1.34Vp-p
⑪ 301 ⑪ (CD PB)
0.2us/div 1.46Vp-p
⑭ 301 ⑮ (CD PB)
30nsec 3.3Vp-p
IC303
16M DRAM
MEMA 0 – 9
MEMD 0 – 15
WE, RAS, LCAS, UCAS
65 – 74
MA 0 – 9
36 – 43· 46 – 53
MD 0 – 15
29 · 31· 30
RF/SERVO
(SEE PAGE 3-4)
SIG O
RFIN1
RFIN2
IC301 (2/2)
ARP
SD 0 – 7
SDI 0 – 7
SDCK
XSHD
XSRQ
XSAK
SDEF
SDCK, XSHD, XSRQ, XSAK, SDEF
DATA
BCLK
LRCK
DOUT
CDDATA, CDBCK, CDLRCK, CDDOUT
XARPIT
XARPCS
XWAIT
XINT
XCS
XWAT
33MARP
CLKIN
A 0 – 7
HA 0 – 7
HA 0 – 21
D 0 – 7
HD 8 – 15
HD 0 – 15
XWRH
XRD
XWR
TDO
TCK
TDI
TMS
TRST
LAND
(FOR J TAG)
SYSTEM CONTROL
(SEE PAGE 3-3)
HA 0 – 21
HD 0 – 15
XRST
512FSAVD
XAVDCS2
XAVDCS3
27MAVD
XAVDIT
DREQ0
DACK0
DREQ1
DACK1
16
IC404, 405*
16M SDRAM
Except: NS325; E
ADAD 0 – 11
ADDT 0 – 15
CLK, CKE, DQML, DQMU, CS, WE, CAS, RAS
105 – 108·110 – 113· 115·116·118·120
135 – 138·140 – 143· 145 – 148·150· 151·153·154
SDDQ 0 – 15
122·124·125· 127·129·130· 132·133
DTI 0 – 7
ICLKI
IERRI
ISTARTI
IVALI
IREQON
CDIN2I
CDIN1I
CDBCKI
CDLRKI
161 – 169 · 171 – 174 · 176 – 179 · 181 – 184 · 186 – 189 · 191 – 194
HD 0 – 21
2 – 5 · 7 – 10 · 12 – 15 · 17 – 20
HD 0 – 15
IC403
AV DECODER
TDI
TCK
TDO
TMS
TRST
XRD
XWRH
HCSn
HRWn
RSTn
ACLK
HAD23
HAD22
CLKI
SCLKI
HWAITOn
HIREQO
DM ACK1
DM REQ1
DM ACK0
DM REQ0
202 – 205
⑮ IC403 ㉒
40nsec 3.3Vp-p
㉒ IC403 ⑮⑯
38nsec 3.3Vp-p
⑰ IC403 ㊼
63.5usec 979mVp-p
⑱ IC403 ㊾
63.5usec 675mVp-p
⑲ IC403 ㊿
6.35usec 666mVp-p
㉑ IC403 (65)
33.5usec 1.1Vp-p
⑯ IC403 ㊺
63.5usec 1.0Vp-p
⑳ IC403 (63)
6.8usec 625mVp-p
G OUT
R OUT
B OUT
COMPOUT
Y OUT
C OUT
Y/G
CB/R
CR/B
COMPOUT
YOUT
COUT
CN601 (1/3)
Y/G
Cb/R
Cr/B
V
Y
C
VIDEO
(SEE PAGE 3-11)
VREFI
RV401
VIDEO LEVEL ADJ.
ACH12
ACH34
ACH56
LRCKO
BCKO
DO
LAND
ACH12
LRCK
BCK
SPDIF
AUDIO
(SEE PAGE 3-9)

3-5. AUDIO BLOCK DIAGRAM

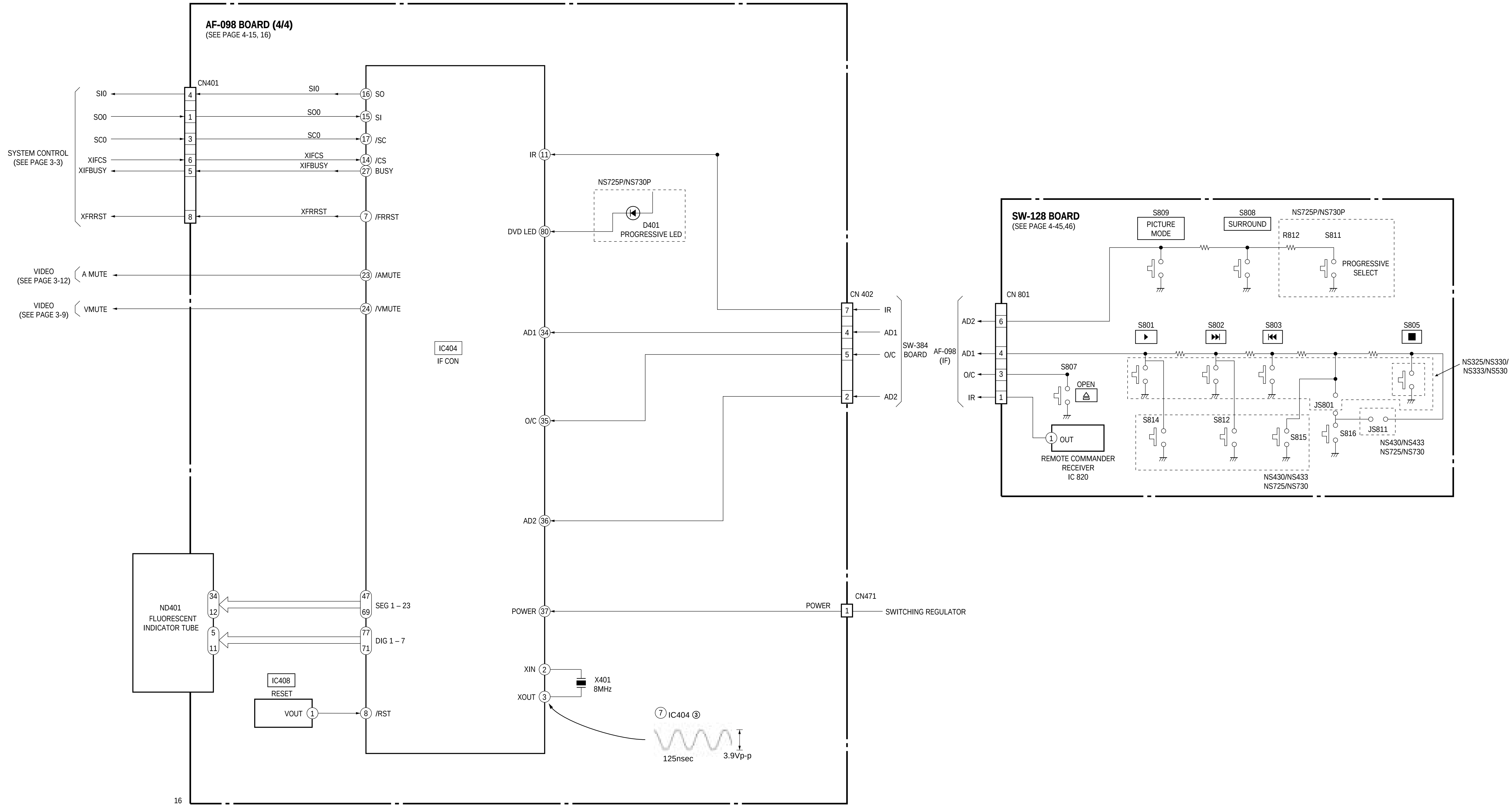

MB-108 BOARD (6/6)
(SEE PAGE 4-37, 38)
SIGNAL PROCESSOR
(SEE PAGE 3-4)
SPDIF
ACH12
BCK
LRCK
SYSTEM
CONTROL
(SEE PAGE 3-3)
512FS2CH
XDACS
XRST
SC1
SO1
MAMUTE
㉜ IC601 ①
42nsec
3.3Vp-p
IC601
AUDIO D/A CONVERTER
3 SDTI
2 BICK
4 LRCK
1 MCLK
6 CSN
5 PDN
7 CCLK
8 CDTI
AOUTL+ 12
AOUTL– 11
AOUTR+ 10
AOUTR– 9
DZFL 16
DZFR 15
CN601 (3/3)
16
17
15
21
23
22
20
24
SPDIF
ALT+
ALT–
ART+
ART–
LMUTE
RMUTE
MAMUTE
AF-098 BOARD (2/4)
(SEE PAGE 4-11, 12)
CN203 (2/2)
10
9
11
5
3
4
6
2
IC201
AUDIO AMP
5
6
3
2
7
1
Q207
MUTE
Q208
MUTE
D202
Q202, 204, 205
MUTE DRIVE
D203
Q206, 209, 210
MUTE DRIVE
(NS330/NS333/
NS430/NS433)
(NS430/NS433/NS725P/NS530/NS730P)
1 D IN
IC204
OPTICAL
DIGITAL
OUT
Q211
BUFFER
J201
COAXIAL
J101
LINE OUT
L
AUDIO
R
AEP/UK/RUS
CN102 (2/2)
2
5
ERAUDIOL
ERAUDIOR
VIDEO
(SEE PAGE 3-11)
A MUTE
INTERFACE
CONTROL
(SEE PAGE 3-7)

3-6. VIDEO BLOCK DIAGRAM

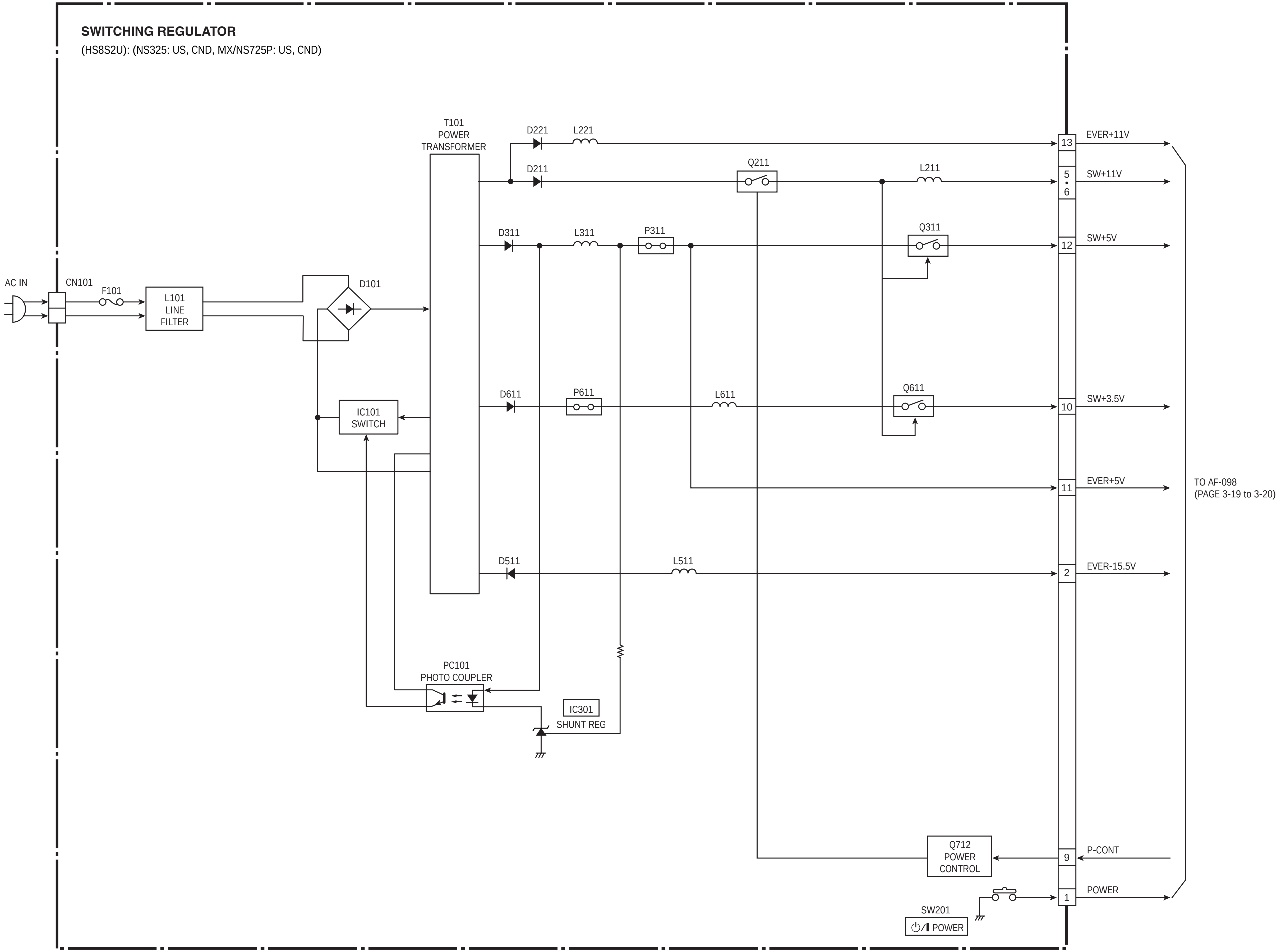


31 IC504 44
63.4usec
1.08Vp-p
30 IC504 43
63.5usec
979mVp-p
29 IC504 42
280nsec
508Vp-p
MB-108 Board (5/6)
(SEE PAGE 4-33,34)
IC504
VIDEO ENCODER
SDA
SCLK
RESETB
DAC A
DAC B
DAC C
DAC D
DAC E
DAC F
RSET1
RSET2
CLKIN
CLKIN 2
P Y[0] - P Y[9]
P C[0] - P C[9]
S[2] - S[9]
IC502
I/P CONVERTER
SDA
SCL
PLL EN
PI2 - PI9
CLK27M
Y[0] - Y[9]
CO[0] - CO[9]
PO[2] - PO[9]
CLKO
MD0 - MD15
Y 0 Ð 9
CBCR 0 Ð 9
PO 0 Ð 7
SYSTEM CONTROL (SEE PAGE 3-3)
SDA
SCL
XRST
SIGNAL PROCESSOR (SEE PAGE 3-7)
DVD0 - 7
DVD 0 - 7
27MCLK
IC503
16M SDRAM
DQ 0 - 15
A 0 - 11
WE, CAS, RAS, CKE, CLK
110 - 113
116 - 119
122 - 125
129 - 132
28 IC504 39
63.5usec
131Vp-p
27 IC504 38
63.5usec
633mVp-p
25 IC504 32
36nsec
1.2Vp-p
26 IC504 37
63.5nsec
483mVp-p
24 IC502 133
18.3nsec
937mVp-p
23 IC502 40
36nsec
1.2Vp-p
RV502
PROG. VIDEO LEVEL ADJ.
RV501
VIDEO LEVEL ADJ.
CN601
V
Y
C
Y/G
Cb/R
Cr/B
IPSW
WIDE
SYSTEM CONTROL (SEE PAGE 3-3)
AF-098 (1/4)
(SEE PAGE 4-9, 10)
CN203 (1/2)
* IC102 36 pin :EXCEPT (NS330/NS333/NS430/NS433)
IC102 24 pin :(NS330/NS333/NS430/NS433)
IC102
VIDEO BUFFER
VIDEO IN
VIDEO OUT
Y IN
Y OUT
C IN
C OUT
MUTE1
MUTE2
Y IN
Cb IN
Cr IN
Y OUT
Cb OUT
Cr OUT
AEP, UK, RUS
EXCEPT AEP, UK, RUS
AEP, UK, RUS
EXCEPT AEP, UK, RUS
AEP, UK, RUS
EXCEPT AEP, UK, RUS
J103
EXCEPT NS330/NS333/NS430/NS530
S VIDEO OUT
VIDEO
LINE OUT
J102
Y
PB
PR
COMPONENT VIDEO OUT
EXCEPT NS330/NS333/NS430/NS530
1 IC102 33
H
2.5Vp-p
3 IC102 29
H
2.0Vp-p
2 IC102 31
H
1.8Vp-p
4 IC102 24
H
2.0Vp-p
6 IC102 20
H
1.4Vp-p
5 IC102 22
H
1.4Vp-p
Q104, 105
WIDE SWITCH
Q106
BUFFER
CN102 (1/2)
V
Y
C
R
G
B
VMUTE
EUROVY
WIDE
RGBSEL
DISCEXT
SYSTEM CONTROL (SEE PAGE 3-3)
RGBSEL
DISC/EXT
INTERFACE CONTROL (SEE PAGE 3-13)
VMUTE
CN202 (1/2)
NS330/NS333/NS430/NS730
ER-21 BOARD
(SEE PAGE 4-21, 22)
IC901
VIDEO BUFFER SELECT SWITCH
V IN
Y IN
C IN
R IN
G IN
B IN
MUTE1
MUTE3
MUTE2
SW1
SW2
V/Y OUT
R/C OUT
G OUT
B OUT
V/Y
R/C
G
B
D907
V/Y OUT
BLANKING OUT
R/C OUT
G OUT
FUNCTION SW OUT
B OUT
A(L)OUT
A(R)OUT
CNJ902
LINE1 (RGB)-TV
0906-908
FUNCTION SIGNAL GENERATOR
0901-903
BLANKING SIGNAL GENERATOR
AUDIO (SEE PAGE 3-9)
ERAUDIOL
ERAUDIOR

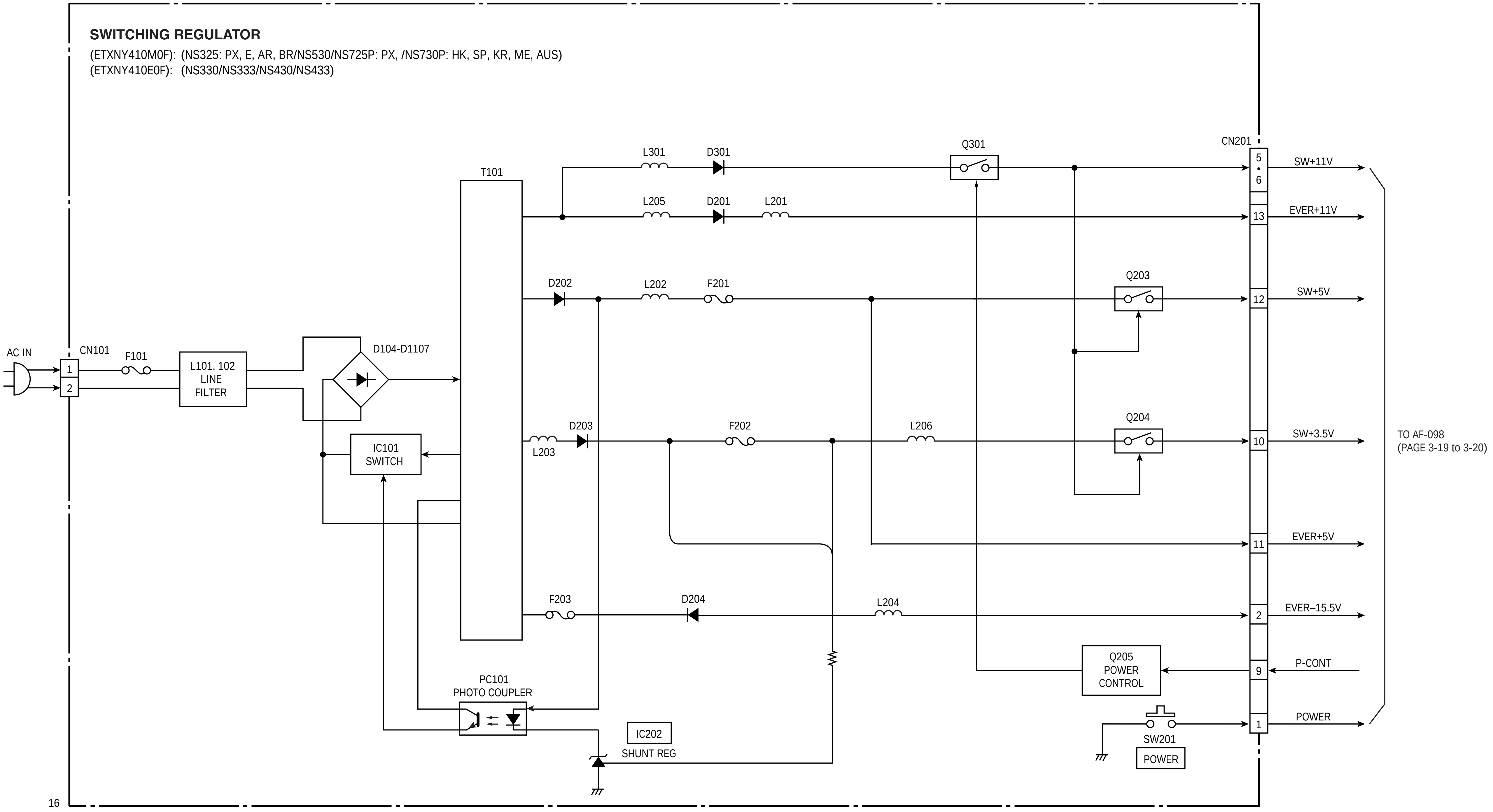
3-7. INTERFACE CONTROL BLOCK DIAGRAM


AF-098 BOARD (4/4)
(SEE PAGE 4-15, 16)
CN401
SI0
SO0
SC0
XIFCS
XIFBUSY
XFRRST
SYSTEM CONTROL
(SEE PAGE 3-3)
16 SO
15 SI
17 /SC
14 /CS
27 BUSY
7 /FRRST
VIDEO
(SEE PAGE 3-12)
A MUTE
23 /AMUTE
VIDEO
(SEE PAGE 3-9)
VMUTE
24 /VMUTE
IC404
IF CON
IR 11
NS725P/NS730P
D401
PROGRESSIVE LED
DVD LED 80
AD1 34
O/C 35
AD2 36
POWER 37
XIN 2
XOUT 3
X401
8MHz
CN 402
IR
AD1
O/C
AD2
SW-384
BOARD
CN471
POWER
SWITCHING REGULATOR
ND401
FLUORESCENT
INDICATOR TUBE
34
12
5
11
47
69
SEG 1 – 23
77
71
DIG 1 – 7
IC408
RESET
VOUT 1
8 /RST
7 IC404 ③
125nsec
3.9Vp-p
16
SW-128 BOARD
(SEE PAGE 4-45,46)
S809
PICTURE
MODE
S808
SURROUND
NS725P/NS730P
R812
S811
PROGRESSIVE
SELECT
CN 801
AF-098
(IF)
AD2
AD1
O/C
IR
S801
S802
S803
S805
S807
OPEN
NS325/NS330/
NS333/NS530
JS801
S814
S812
S815
S816
JS811
NS430/NS433
NS725/NS730
1 OUT
REMOTE COMMANDER
RECEIVER
IC 820
NS430/NS433
NS725/NS730

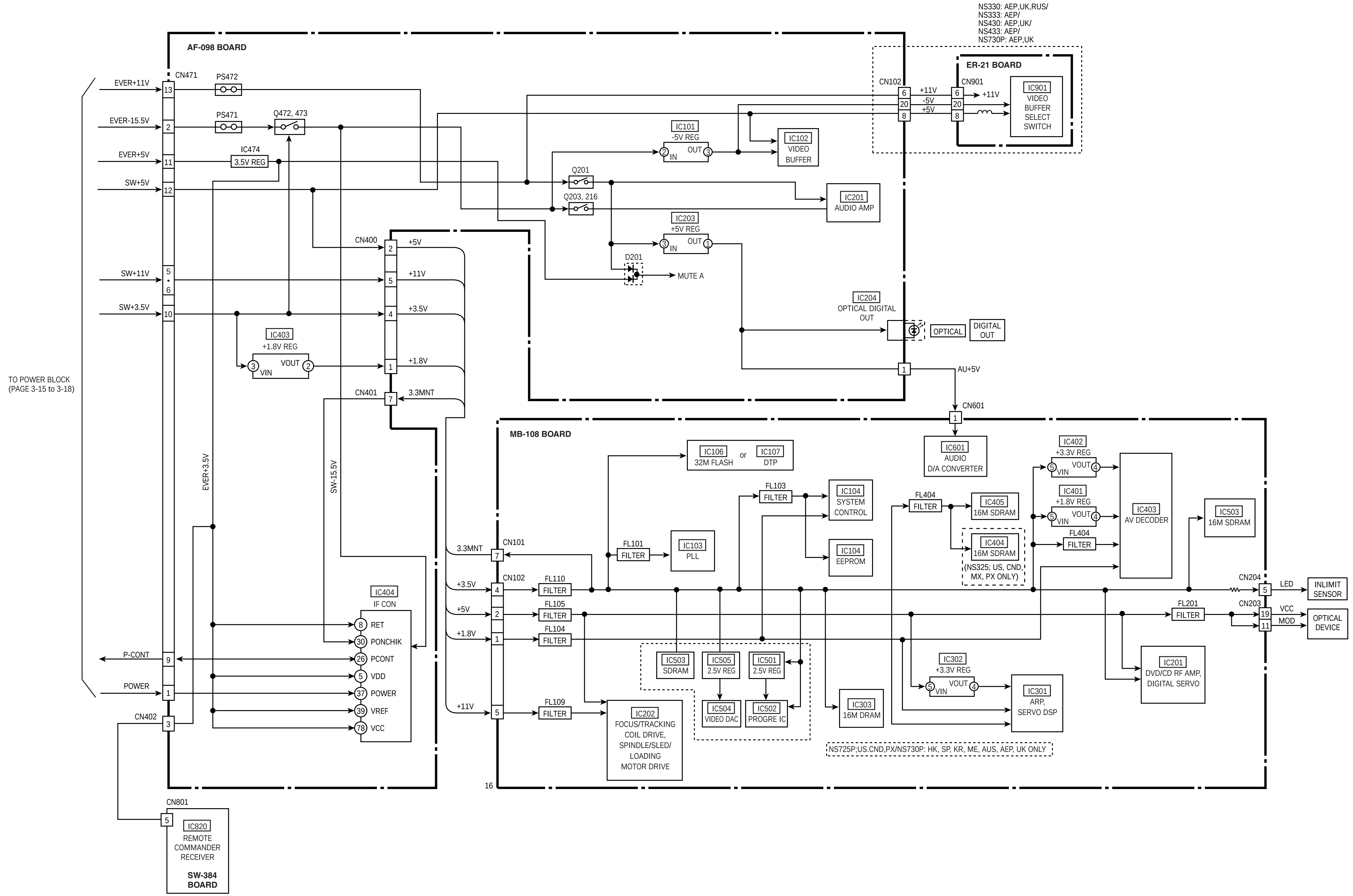
3-8. POWER BLOCK DIAGRAM (1/3)


SWITCHING REGULATOR
(HS8S2U): (NS325: US, CND, MX/NS725P: US, CND)
AC IN
CN101
F101
L101
LINE
FILTER
D101
T101
POWER
TRANSFORMER
IC101
SWITCH
D221
L221
D211
Q211
L211
D311
L311
P311
Q311
D611
P611
L611
Q611
D511
L511
PC101
PHOTO COUPLER
IC301
SHUNT REG
Q712
POWER
CONTROL
SW201
⏻/I POWER
13
5
6
12
10
11
2
9
1
EVER+11V
SW+11V
SW+5V
SW+3.5V
EVER+5V
EVER-15.5V
P-CONT
POWER
TO AF-098
(PAGE 3-19 to 3-20)

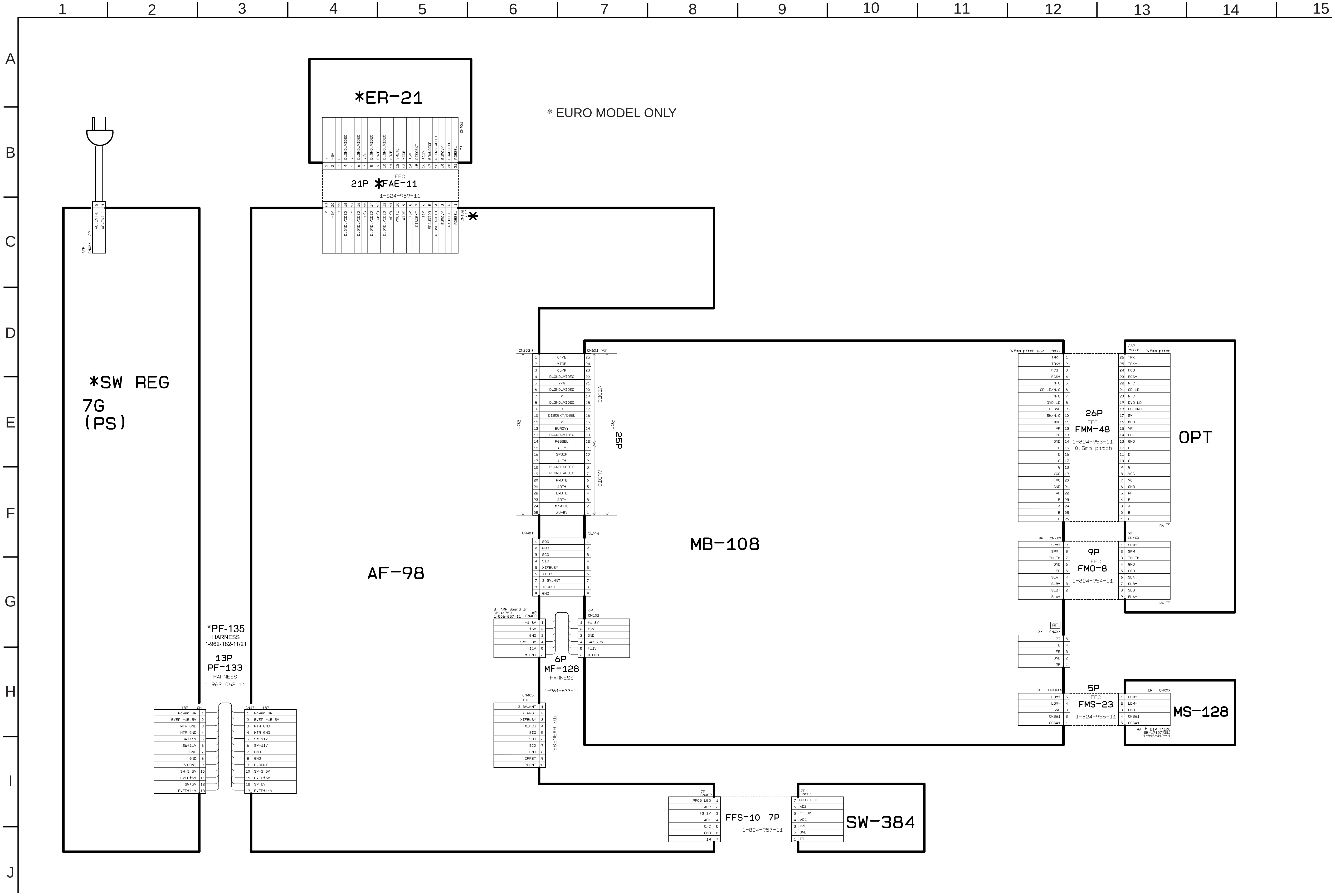
3-9. POWER BLOCK DIAGRAM (2/3)


SWITCHING REGULATOR
(ETXNY410M0F): (NS325: PX, E, AR, BR/NS530/NS725P: PX, /NS730P: HK, SP, KR, ME, AUS)
(ETXNY410E0F): (NS330/NS333/NS430/NS433)
AC IN
CN101
1
2
F101
L101, 102
LINE
FILTER
D104-D1107
IC101
SWITCH
T101
L301
D301
L205
D201
L201
D202
L202
F201
L203
D203
F202
L206
F203
D204
L204
PC101
PHOTO COUPLER
IC202
SHUNT REG
Q301
Q203
Q204
Q205
POWER
CONTROL
SW201
POWER
CN201
5
6
13
12
10
11
2
9
1
SW+11V
EVER+11V
SW+5V
SW+3.5V
EVER+5V
EVER–15.5V
P-CONT
POWER
TO AF-098
(PAGE 3-19 to 3-20)
16

3-10. POWER BLOCK DIAGRAM (3/3)


NS330: AEP,UK,RUS/
NS333: AEP/
NS430: AEP,UK/
NS433: AEP/
NS730P: AEP,UK
AF-098 BOARD
ER-21 BOARD
CN471
PS472
PS471
Q472, 473
IC474
3.5V REG
EVER+11V
EVER-15.5V
EVER+5V
SW+5V
SW+11V
SW+3.5V
TO POWER BLOCK
(PAGE 3-15 to 3-18)
P-CONT
POWER
CN402
CN102
CN901
+11V
-5V
+5V
IC901
VIDEO
BUFFER
SELECT
SWITCH
IC101
-5V REG
IN
OUT
IC102
VIDEO
BUFFER
Q201
Q203, 216
IC201
AUDIO AMP
IC203
+5V REG
D201
MUTE A
IC204
OPTICAL DIGITAL
OUT
OPTICAL
DIGITAL
OUT
AU+5V
CN400
CN401
3.3MNT
+3.5V
+1.8V
IC403
+1.8V REG
VIN
VOUT
EVER+3.5V
SW-15.5V
IC404
IF CON
RET
PONCHIK
PCONT
VDD
POWER
VREF
VCC
CN801
IC820
REMOTE
COMMANDER
RECEIVER
SW-384
BOARD
CN601
MB-108 BOARD
CN101
FL110
FL105
FL104
FL109
FILTER
IC106
32M FLASH
or
IC107
DTP
FL101
IC103
PLL
FL103
IC104
SYSTEM
CONTROL
IC104
EEPROM
IC503
SDRAM
IC505
2.5V REG
IC501
2.5V REG
IC504
VIDEO DAC
IC502
PROGRE IC
IC202
FOCUS/TRACKING
COIL DRIVE,
SPINDLE/SLED/
LOADING
MOTOR DRIVE
IC303
16M DRAM
IC601
AUDIO
D/A CONVERTER
FL404
IC405
16M SDRAM
IC404
16M SDRAM
(NS325; US, CND,
MX, PX ONLY)
IC402
+3.3V REG
IC401
+1.8V REG
IC403
AV DECODER
IC503
16M SDRAM
IC302
+3.3V REG
IC301
ARP,
SERVO DSP
IC201
DVD/CD RF AMP,
DIGITAL SERVO
NS725P;US.CND,PX/NS730P: HK, SP, KR, ME, AUS, AEP, UK ONLY
CN204
CN203
FL201
LED
VCC
MOD
INLIMIT
SENSOR
OPTICAL
DEVICE
16

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS


*ER-21
* EURO MODEL ONLY
21P *FAE-11
FFC
1-824-959-11
CN991
CN102
*SW REG
7G
(PS)
AC IN(N)
AC IN(L)
2P
CNXXX
AMP
AF-98
MB-108
CN203
CN601 25P
VIDEO
AUDIO
25P
2ch
CN401
CN204
ST AMP Board In
CN400
CN102
6P
MF-128
HARNESS
1-961-633-11
CN405
10P
JIG HARNESS
*PF-135
HARNESS
1-962-182-11/21
13P
PF-133
HARNESS
1-962-062-11
CN471
26P
FFC
FMM-48
1-824-953-11
0.5mm pitch
OPT
9P
FFC
FMO-8
1-824-954-11
RF
5P
FFC
FMS-23
1-824-955-11
MS-128
7P
CN402
CN801
FFS-10 7P
1-824-957-11
SW-384

FRAME SCHEMATIC DIAGRAM

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block)

For printed wiring boards:

- ○—— : indicates a lead wire mounted on the component side.
- ●—— : indicates a lead wire mounted on the printed side.
- ○ : Through hole.
- ▭ : Pattern from the side which enables seeing. (The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Side A)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side B)	Parts on the parts face side seen from the parts face are indicated.

- Abbreviation
  - US : USA model
  - CND : Canadian model
  - PX : PX model
  - E: Latin America
  - MX : Mexico model
  - BR : Brazilian model
  - AR : Argentina model
  - HK : Hong Kong model
  - SP : Malaysia, Thai, Philippine, Indonesia, Vietnam models
  - TW : Taiwan model
  - KR : Korea model
  - EA : Saudi Arabia model
  - ME2 : Middle East model
  - ME5 : India, Pakistan, Morocco models
  - AUS : Australian model
  - CN : Chinese model
  - UK : UK model
  - RUS : Russian model
  - AE1 : AEP model
  - AE2 : AEP model

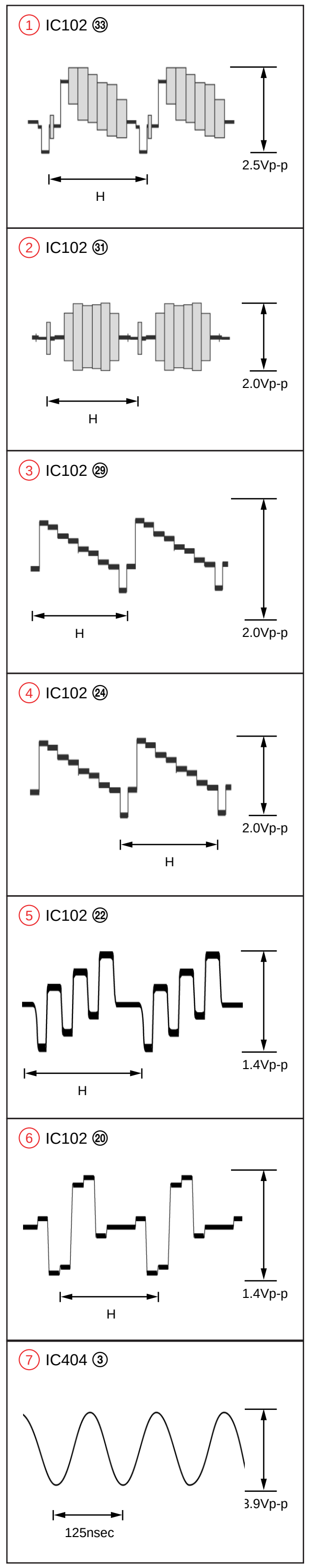
For schematic diagrams:

- All capacitors are in μF unless otherwise noted. pF : μμF. 50V or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W (Chip resistors : 1/10W) unless otherwise specified.
  kΩ = 1000Ω, MΩ = 1000kΩ.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- -[W]- : non flammable resistor.
- -[W]- : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- ▭ : adjustment for repair.
- B+ : B+ Line.
- B– : B– Line.
- Circled numbers refer to waveforms.
- Voltages are dc between measurement point.
- Readings are taken with a color-bar signal on DVD reference disc and when playing CD reference disc.
- Readings are taken with a digital multimeter (DC 10MΩ).
- Voltage variations may be noted due to normal production tolerances.

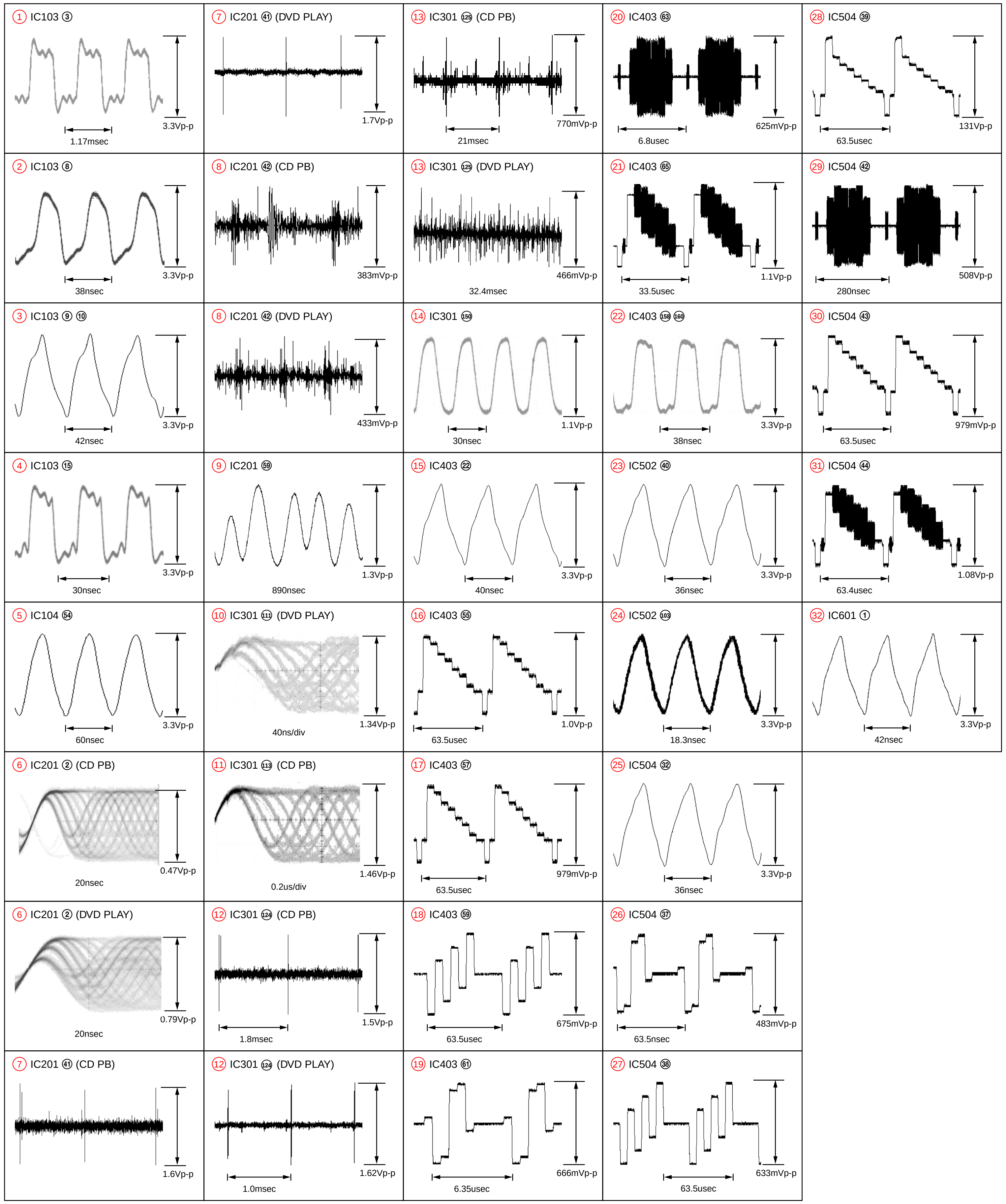
Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

AF-098 BOARD



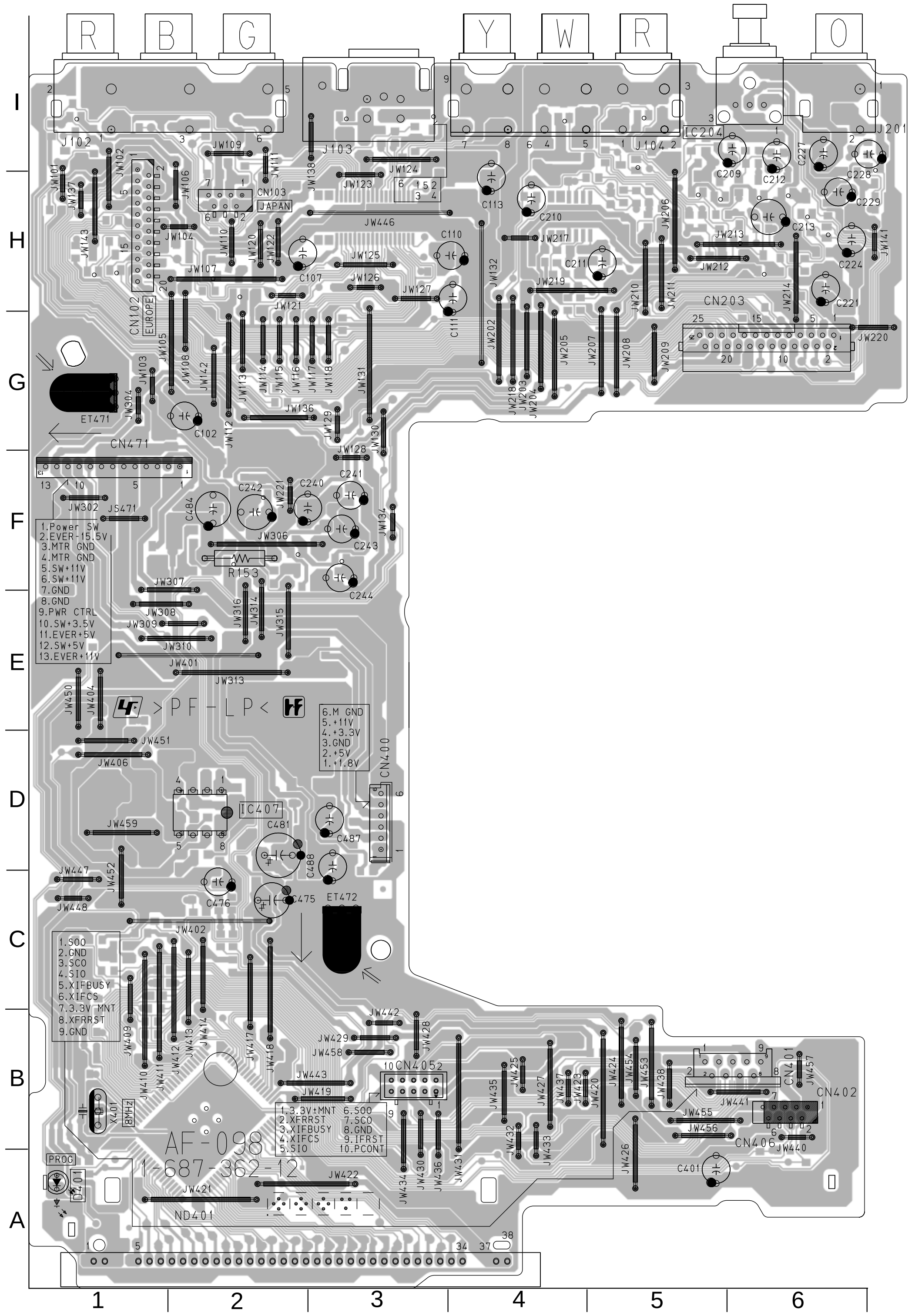
MB-108 BOARD



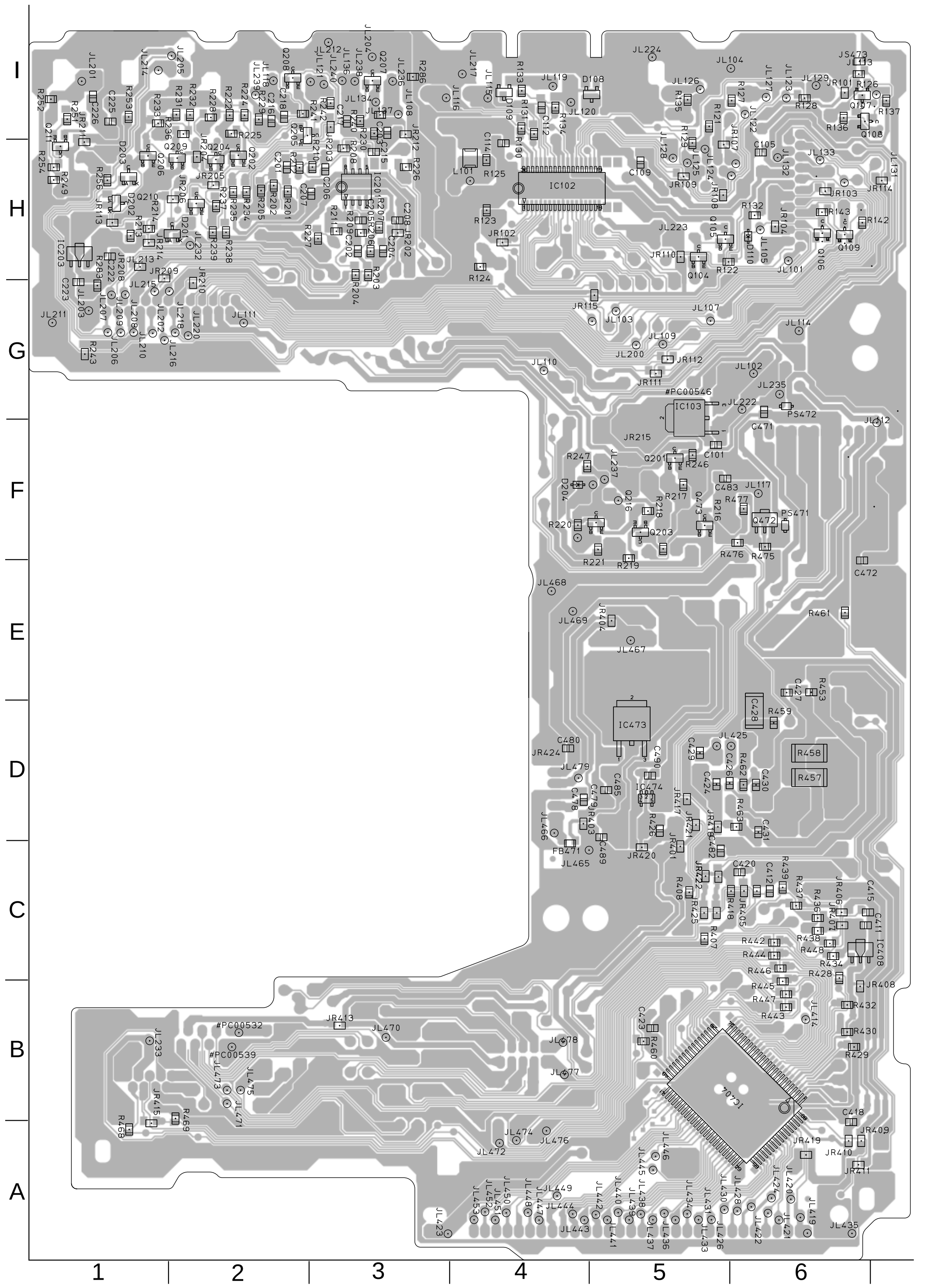
AF-098 (AUDIO OUT, VIDEO OUT, PS TROUGH, IF) PRINTED WIRING BOARD

- : Uses unleaded solder.

AF-098 BOARD A SIDE


R
B
G
Y
W
R
O
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
J102
J103
J104
IC204
CN102
CN103
JAPAN
CN203
CN471
CN400
IC407
ET471
ET472
CN402
CN406
CN401
1.Power SW
2.EVER-15.5V
3.MTR GND
4.MTR GND
5.SW+11V
6.SW+11V
7.GND
8.GND
9.PWR CTRL
10.SW+3.5V
11.EVER+5V
12.SW+5V
13.EVER+11V
6.M GND
5.+11V
4.+3.3V
3.GND
2.+5V
1.+1.8V
>PF-LP<
1.SOO
2.GND
3.SCO
4.SIO
5.XIFBUSY
6.XIFCS
7.3.3V MNT
8.XFRRST
9.GND
ND401
AF-098
1-687-362-12
PROG

AF-098 BOARD B SIDE

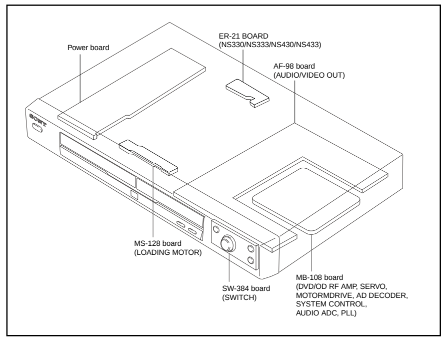

I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
IC102
IC103
IC201
IC203
IC473
IC474
IC404
IC408

For printed wiring board

There are a few cases that the part printed on this diagram isn't mounted in this model.

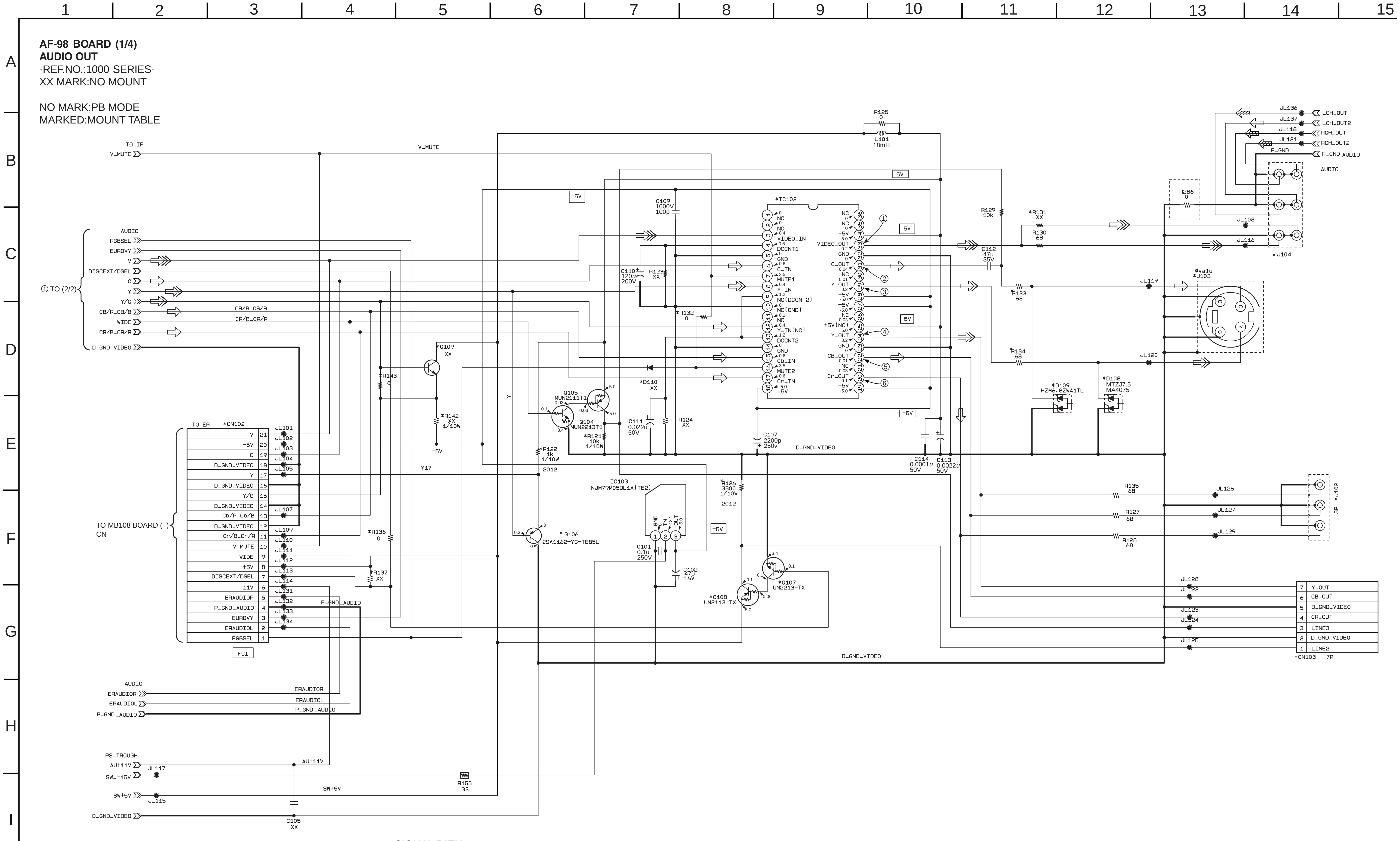
AF-098 BOARD

A SIDE		**B SIDE**	
IC204	I-5	IC102	H-4
IC407	D-2	IC103	G-5
		IC201	I-3
D401	A-1	IC203	H-1
		IC404	B-6
		IC408	C-6
		IC473	D-5
		IC474	D-5
		Q104	H-5
		Q105	H-5
		Q106	H-6
		Q107	I-6
		Q108	I-6
		Q109	H-6
		Q201	F-5
		Q202	H-2
		Q203	F-5
		Q204	H-5
		Q205	I-2
		Q206	H-1
		Q207	I-3
		Q208	I-2
		Q209	H-2
		Q210	H-1
		Q216	F-5
		Q472	F-5
		Q473	F-5
		D108	I-5
		D109	I-4
		D110	H-6
		D201	H-2
		D202	H-1
		D203	H-1
		D204	F-4


Power board
ER-21 BOARD
(NS330/NS333/NS430/NS433)
AF-98 board
(AUDIO/VIDEO OUT)
MS-128 board
(LOADING MOTOR)
SW-384 board
(SWITCH)
MB-108 board
(DVD/OD RF AMP, SERVO,
MOTORMDRIVE, AD DECODER,
SYSTEM CONTROL,
AUDIO ADC, PLL)

For Schematic Diagram

- Refer to page 4-7 for printed wiring board of AF-98 board.
- Refer to page 4-5 for waveform
- Refer to page 4-17 for Differential Part List



AF-98 BOARD (1/4)
AUDIO OUT
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT

NO MARK:PB MODE
MARKED:MOUNT TABLE

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
TO_IF
V_MUTE
AUDIO
RGBSEL
EUROVY
V
DISCEXT/DSEL
C
Y
Y/G
CB/R_CB/B
WIDE
CR/B_CR/R
D_GND_VIDEO
① TO (2/2)
TO ER
*CN102
TO MB108 BOARD ( ) CN
FCI
IC102
VIDEO_IN
DCCNT1
C_IN
MUTE1
Y_IN
NC(DCCNT2)
NC(GND)
Y_IN(NC)
DCCNT2
Cb_IN
MUTE2
Cr_IN
VIDEO_OUT
C_OUT
Y_OUT
CB_OUT
Cr_OUT
R125 0
L101 18mH
C109 1000V 100p
C110 120u 200V
R123 XX
R132 0
*Q109 XX
*R143 0
*R142 XX 1/10W
Q105 MUN2111T1
Q104 MUN2213T1
*R121 10k 1/10W
*R122 1k 1/10W
*D110 XX
C111 0.022u 50V
R124 XX
C107 2200p 250V
C114 0.0001u 50V
C113 0.0022u 50V
C112 47u 35V
R129 10k
*R131 XX
R130 68
R133 68
R134 68
*D109 HZM6.8ZWA1TL
*D108 MTZJ7.5 MA4075
IC103 NJM79M05DL1A(TE2)
C101 0.1u 250V
C102 47u 16V
*R126 3300 1/10W
*Q108 UN2113-TX
*Q107 UN2213-TX
*Q106 2SA1162-YG-TE85L
*R136 0
*R137 XX
R135 68
R127 68
R128 68
R286 0
JL136 LCH_OUT
JL137 LCH_OUT2
JL118 RCH_OUT
JL121 RCH_OUT2
P_GND AUDIO
*J104
*J103
*J102
*CN103 7P
Y_OUT
CB_OUT
D_GND_VIDEO
CR_OUT
LINE3
D_GND_VIDEO
LINE2
ERAUDIOR
ERAUDIOL
P_GND_AUDIO
PS_TROUGH
AU+11V
SW_-15V
SW+5V
JL117
JL115
R153 33
C105 XX
5V
-5V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

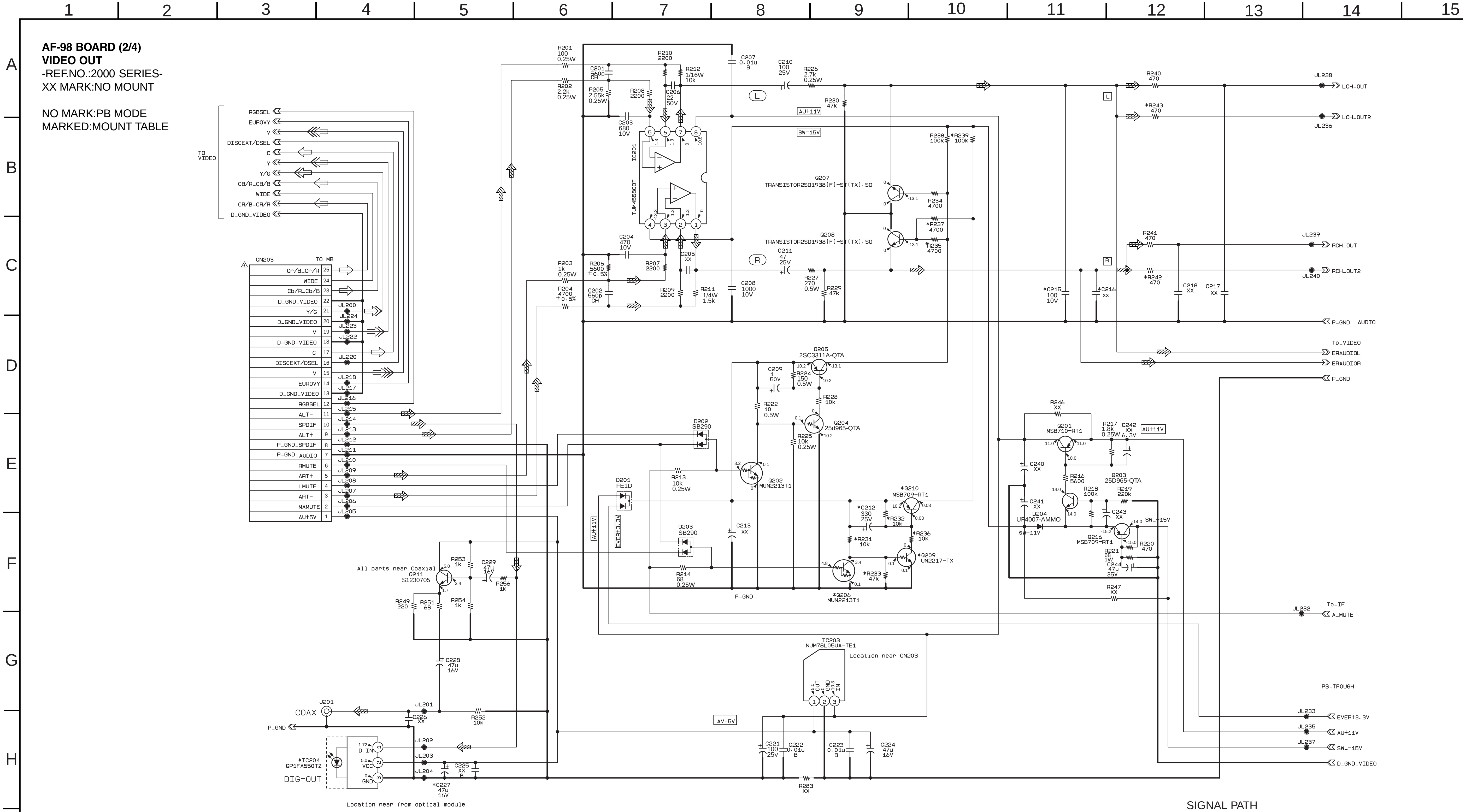
SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
PB	⇨	⇛	⇛	▨

DVP-NS325/NS330/NS333/NS430/NS433/NS530/NS725P/NS730P

For Schematic Diagram

- Refer to page 4-7 for printed wiring board of AF-98 board.
- Refer to page 4-5 for waveform
- Refer to page 4-17 for Differential Part List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J
AF-98 BOARD (2/4)
VIDEO OUT
-REF.NO.:2000 SERIES-
XX MARK:NO MOUNT
NO MARK:PB MODE
MARKED:MOUNT TABLE
TO VIDEO
RGBSEL
EUROVY
V
DISCEXT/DSEL
C
Y
Y/G
CB/R_CB/B
WIDE
CR/B_CR/R
D_GND_VIDEO
CN203
TO MB
Cr/B_Cr/R 25
WIDE 24
Cb/R_Cb/B 23
D_GND_VIDEO 22
Y/G 21
D_GND_VIDEO 20
V 19
D_GND_VIDEO 18
C 17
DISCEXT/DSEL 16
V 15
EUROVY 14
D_GND_VIDEO 13
RGBSEL 12
ALT- 11
SPDIF 10
ALT+ 9
P_GND_SPDIF 8
P_GND_AUDIO 7
RMUTE 6
ART+ 5
LMUTE 4
ART- 3
MAMUTE 2
AU+5V 1
JL200
JL224
JL223
JL222
JL220
JL218
JL217
JL216
JL215
JL214
JL213
JL212
JL211
JL210
JL209
JL208
JL207
JL206
JL205
R201 100 0.25W
R202 2.2k 0.25W
R203 1k 0.25W
R204 4700 ±0.5%
C201 560p CH
R205 2.55k 0.25W
R206 5600 ±0.5%
C202 560p CH
R210 2200
R212 1/16W 10k
C206 22 50V
R208 2200
C203 680 10V
IC201
TJM4558CDT
C204 470 10V
R207 2200
C205 XX
R209 2200
R211 1/4W 1.5k
C207 0.01u B
C208 1000 10V
C210 100 25V
R226 2.7k 0.25W
R230 47k
AU+11V
SW-15V
C211 47 25V
R227 270 0.5W
R229 47k
Q207 TRANSISTOR2SD1938(F)-ST(TX).SO
Q208 TRANSISTOR2SD1938(F)-ST(TX).SO
R234 4700
*R237 4700
R235 4700
R238 100k
*R239 100k
R240 470
*R243 470
R241 470
*R242 470
*C215 100 10V
*C216 XX
C218 XX
C217 XX
JL238 LCH_OUT
JL236 LCH_OUT2
JL239 RCH_OUT
JL240 RCH_OUT2
P_GND AUDIO
To_VIDEO
ERAUDIOL
ERAUDIOR
P_GND
Q205 2SC3311A-QTA
C209 1 50V
R224 150 0.5W
R222 10 0.5W
R228 10k
Q204 25d965-QTA
R225 10k 0.25W
D202 SB290
R213 10k 0.25W
Q202 MUN2213T1
D201 FE1D
AU+11V
EVER+3.3V
D203 SB290
C213 XX
R214 68 0.25W
P_GND
*Q210 MSB709-RT1
*C212 330 25V
*R232 10k
*R231 10k
*R236 10k
*Q209 UN2217-TX
*R233 47k
*Q206 MUN2213T1
R246 XX
Q201 MSB710-RT1
R217 1.8k 0.25W
C242 XX 6.3V
AU+11V
C240 XX
R216 5600
Q203 25D965-QTA
C241 XX
D204 UF4007-AMMO
R218 100k
R219 220k
C243 XX
SW-15V
SW-11V
Q216 MSB709-RT1
R221 68 1W
R220 470
C244 47u 35V
R247 XX
JL232 To_IF A_MUTE
All parts near Coaxial
Q211 S1230705
R253 1k
C229 47u 16V
R256 1k
R249 220
R251 68
R254 1k
C228 47u 16V
IC203 NJM78L05UA-TE1
Location near CN203
OUT GND IN
AV+5V
C221 100 25V
C222 0.01u B
C223 0.01u B
C224 47u 16V
R283 XX
PS_TROUGH
JL233 EVER+3.3V
JL235 AU+11V
JL237 SW_-15V
D_GND_VIDEO
J201 COAX
P_GND
JL201
C226 XX
R252 10k
JL202
JL203
JL204
*IC204 GP1FA550TZ
DIG-OUT
D IN
VCC
GND
C225 XX B
*C227 47u 16V
Location near from optical module

SIGNAL PATH

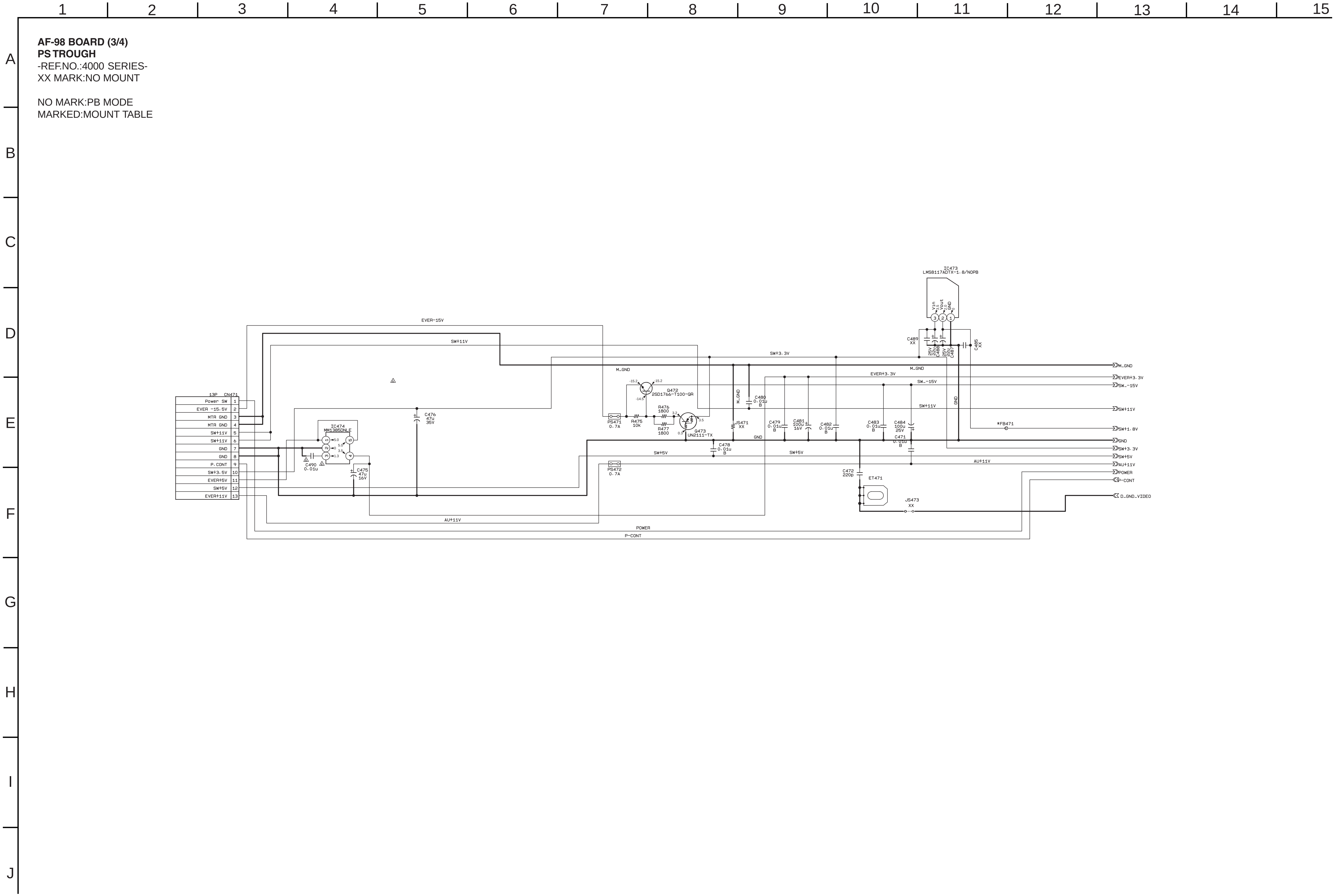
SPINDLE SERVO (SPEED AND PHASE)	⋙
TRACKING SERVO DVD/CD CDV	≫
SLED SERVO DVD/CD	➤
FOCUS SERVO	➢
SKEW SERVO DVD/CD	▷

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
PB	⇨	⇨⇨	⇨⇨⇨	▨⇨

VIDEO OUT
AF-98 (2/4)

For Schematic Diagram

- Refer to page 4-7 for printed wiring board of AF-98 board.
- Refer to page 4-5 for waveform
- Refer to page 4-17 for Differential Part List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F
G
H
I
J
EVER-15V
SW+11V
M_GND
13P CN471
Power SW 1
EVER -15.5V 2
MTR GND 3
MTR GND 4
SW+11V 5
SW+11V 6
GND 7
GND 8
P.CONT 9
SW+3.5V 10
EVER+5V 11
SW+5V 12
EVER+11V 13
IC474
MM1385DNLE
5.0
0
1.3
5.0
3.5
C490
0.01u
C475
47u
16V
C476
47u
35V
AU+11V
POWER
P-CONT
-15.2
-15.2
-14.5
Q472
2SD1766-T100-QR
PS471
0.7A
R475
10k
R476
1800
R477
1800
3.2
3.5
0.3
Q473
UN2111-TX
PS472
0.7A
SW+5V
C478
0.01u
B
M_GND
JS471
XX
C480
0.01u
B
GND
SW+3.3V
EVER+3.3V
SW_-15V
SW+11V
C479
0.01u
B
C481
100u
16V
C482
0.01u
B
C483
0.01u
B
C484
100u
25V
C471
0.01u
B
C472
220p
ET471
JS473
XX
IC473
LMS8117ADTX-1.8/NOPB
Vin
3.5
Vout
2.0
GND
0
3
2
1
C489
XX
25V
22u
C488
25V
22u
C487
C485
XX
GND
*FB471
M_GND
EVER+3.3V
SW_-15V
SW+11V
SW+1.8V
GND
SW+3.3V
SW+5V
AU+11V
POWER
P-CONT
D_GND_VIDEO

AF-98 BOARD (3/4)
PS TROUGH
-REF.NO.:4000 SERIES-
XX MARK:NO MOUNT

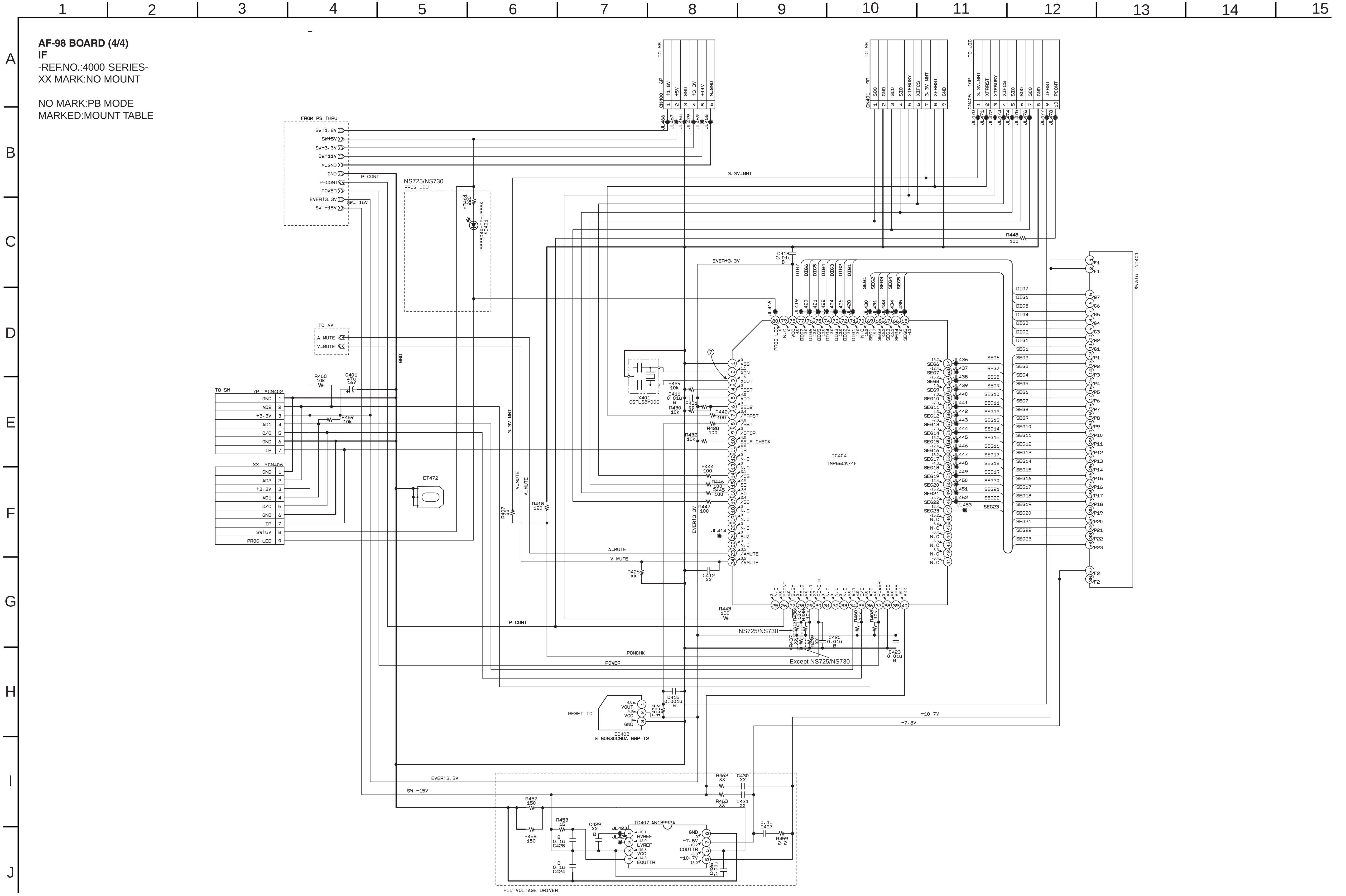
NO MARK:PB MODE
MARKED:MOUNT TABLE

PS TROUGH
AF-98 (3/4)

DVP-NS325/NS330/NS333/NS430/NS433/NS530/NS725P/NS730P

For Schematic Diagram

- Refer to page 4-7 for printed wiring board of AF-98 board.
- Refer to page 4-5 for waveform
- Refer to page 4-17 for Differential Part List



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J
AF-98 BOARD (4/4)
IF
-REF.NO.:4000 SERIES-
XX MARK:NO MOUNT
NO MARK:PB MODE
MARKED:MOUNT TABLE
FROM PS THRU
SW+1.8V
SW+5V
SW+3.3V
SW+11V
M_GND
GND
P-CONT
POWER
EVER+3.3V
SW_-15V
NS725/NS730
PROG LED
*R461
*D401
TO MB
CN400 6P
+1.8V
+5V
GND
+3.3V
+11V
M_GND
CN401 9P
SOO
GND
SCO
SIO
XIFBUSY
XIFCS
3.3V_MNT
XFRRST
CN405 10P
TO JIG
IFRST
PCONT
3.3V_MNT
R448
100
C418
0.01u
EVER+3.3V
TO AV
A_MUTE
V_MUTE
TO SW
7P *CN402
AD2
+3.3V
AD1
O/C
IR
XX *CN406
SW+5V
PROG LED
R468
10k
C401
47u
16V
R469
10k
ET472
X401
CSTLS8M00G
R429
10k
C411
0.01u
R430
10k
R431
XX
R442
100
R428
100
R432
10k
R444
100
R446
100
R445
100
R447
100
R407
33
R418
120
JL414
R426
XX
C412
XX
IC404
TMP86CK74F
VSS
XIN
XOUT
TEST
VDD
SEL2
/FRRST
/RST
/STOP
SELF_CHECK
IR
N.C
/CS
SI
SO
/SC
BUZ
/AMUTE
/VMUTE
PROG LED
VCC
DIG1
DIG2
DIG3
DIG4
DIG5
DIG6
DIG7
SEG1
SEG2
SEG3
SEG4
SEG5
SEG6
SEG7
SEG8
SEG9
SEG10
SEG11
SEG12
SEG13
SEG14
SEG15
SEG16
SEG17
SEG18
SEG19
SEG20
SEG21
SEG22
SEG23
ND401
F1
F2
PCONT
BUSY
SEL0
SEL1
PONCHK
AD1
O/C
AD2
POWER
AVSS
VREF
VKK
R443
100
NS725/NS730
Except NS725/NS730
C420
0.01u
C423
0.01u
P-CONT
PONCHK
POWER
A_MUTE
V_MUTE
3.3V_MNT
EVER+3.3V
C415
0.001u
R434
100k
RESET IC
VOUT
VCC
GND
IC408
S-80830CNUA-B8P-T2
-10.7V
-7.8V
EVER+3.3V
SW_-15V
R462
XX
C430
XX
R463
XX
C431
XX
R457
150
R458
150
R453
15
C428
0.1u
C424
0.1u
C429
XX
JL423
JL425
IC407 AN13992A
HVREF
LVREF
VCC
EOUTTR
GND
COUTTR
-7.8V
-10.7V
C427
0.1u
R459
2.2
C426
0.01u
FLD VOLTAGE DRIVER

IF
AF-098 (4/4)

AF-98 Board Differential Part List

[AUDIO]

	NS325	NS330/NS333	NS430/NS433	NS530	NS725P	NS730P
C212	xx	1u 50V	1u 50V	xx	xx	xx
C215	xx	220p 50V CH	220p 50V CH	220p 50V CH	xx	220p 50V CH
C216	xx	220p 50V CH	220p 50V CH	220p 50V CH	xx	220p 50V CH
C227	xx	xx	47u 16V	47u 16V	47u 16V	47u 16V
D203	xx	DAP202K-T-	DAP202K-T-	xx	xx	xx
IC204	xx	xx	GP1FA55OTZ	GP1FA55OTZ	GP1FA55OTZ	GP1FA55OTZ
Q206	xx	MUN2213T1	MUN2213T1	xx	xx	xx
Q209	xx	UN2217-TX	UN2217-TX	xx	xx	xx
Q210	xx	MSB709-RT1	MSB709-RT1	xx	xx	xx
R214	xx	4700	4700	xx	xx	xx
R231	xx	10k	10k	xx	xx	xx
R232	xx	10k	10k	xx	xx	xx
R233	xx	47k	47k	xx	xx	xx
R235	4700	xx	xx	4700	4700	4700
R236	xx	10k	10k	xx	xx	xx
R237	xx	4700	4700	xx	xx	xx
R239	xx	100k	100k	xx	xx	xx
R242	xx	xx	xx	xx	xx	xx
R243	xx	xx	xx	xx	xx	xx

[IF]

	NS325/NS330/ NS333/NS430/ NS433/NS530	NS725P/NS730
CN402	7p	7p
CN406	xx	xx
D401	xx	EB3804X-TP
R436	xx	10k
R437	10k	xx
R461	xx	220

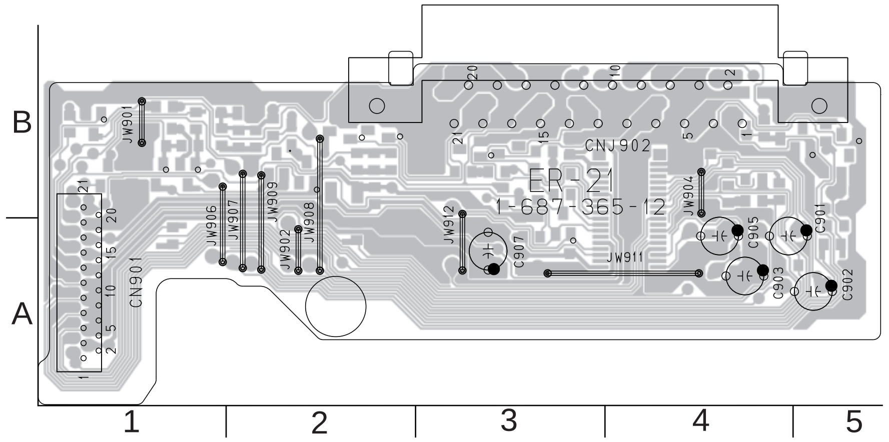
[VIDEO]

	NS325/NS530	NS330/NS333/ NS430/NS433	NS730P/ NS725P
C112	0.1u 16V B	xx	0.1u 16V B
CN102	xx	21P	xx
D108	HZM6.8WA1	xx	HZM6.8WA1
D109	HZM6.8WA1	xx	HZM6.8WA1
IC102	LA73050-TL	LA73051-TL	LA73053-TL
J102	3P	xx	3P
J103	xx	xx	xx
Q104	MUN2213T1	xx	MUN2213T1
Q105	MUN2111T1	xx	MUN2111T1
Q106	xx	2SA1162-YG	xx
R121	10K	xx	3300
R122	xx	1K	xx
R127	68	xx	68
R128	68	xx	68
R129	10K	xx	10K
R133	68	xx	68

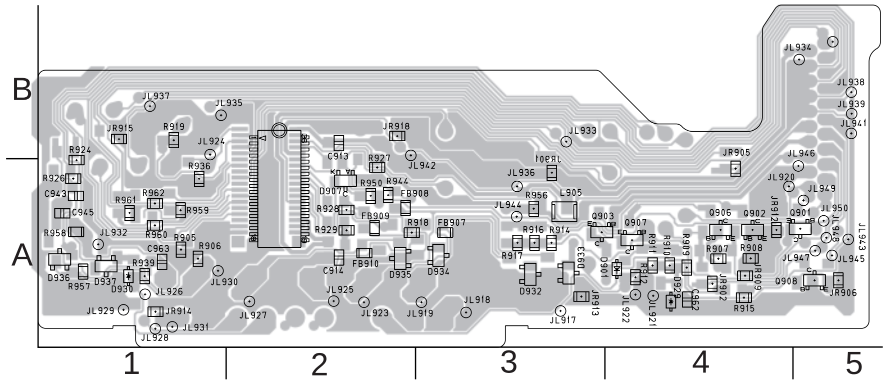
ER-21 (EURO AV) PRINTED WIRING BOARD

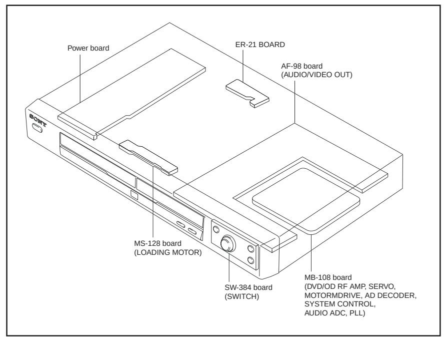
- LF : Uses unleaded solder.

ER-21 BOARD A SIDE


B
A
1
2
3
4
5
CN901
CNJ902
ER-21
1-687-365-12
JW901
JW902
JW904
JW906
JW907
JW908
JW909
JW911
JW912
C901
C902
C903
C905
C907

ER-21 BOARD B SIDE




Power board
ER-21 BOARD
AF-98 board
(AUDIO/VIDEO OUT)
MS-128 board
(LOADING MOTOR)
SW-384 board
(SWITCH)
MB-108 board
(DVD/OD RF AMP, SERVO,
MOTORMDRIVE, AD DECODER,
SYSTEM CONTROL,
AUDIO ADC, PLL)

ER-21 BOARD

B SIDE

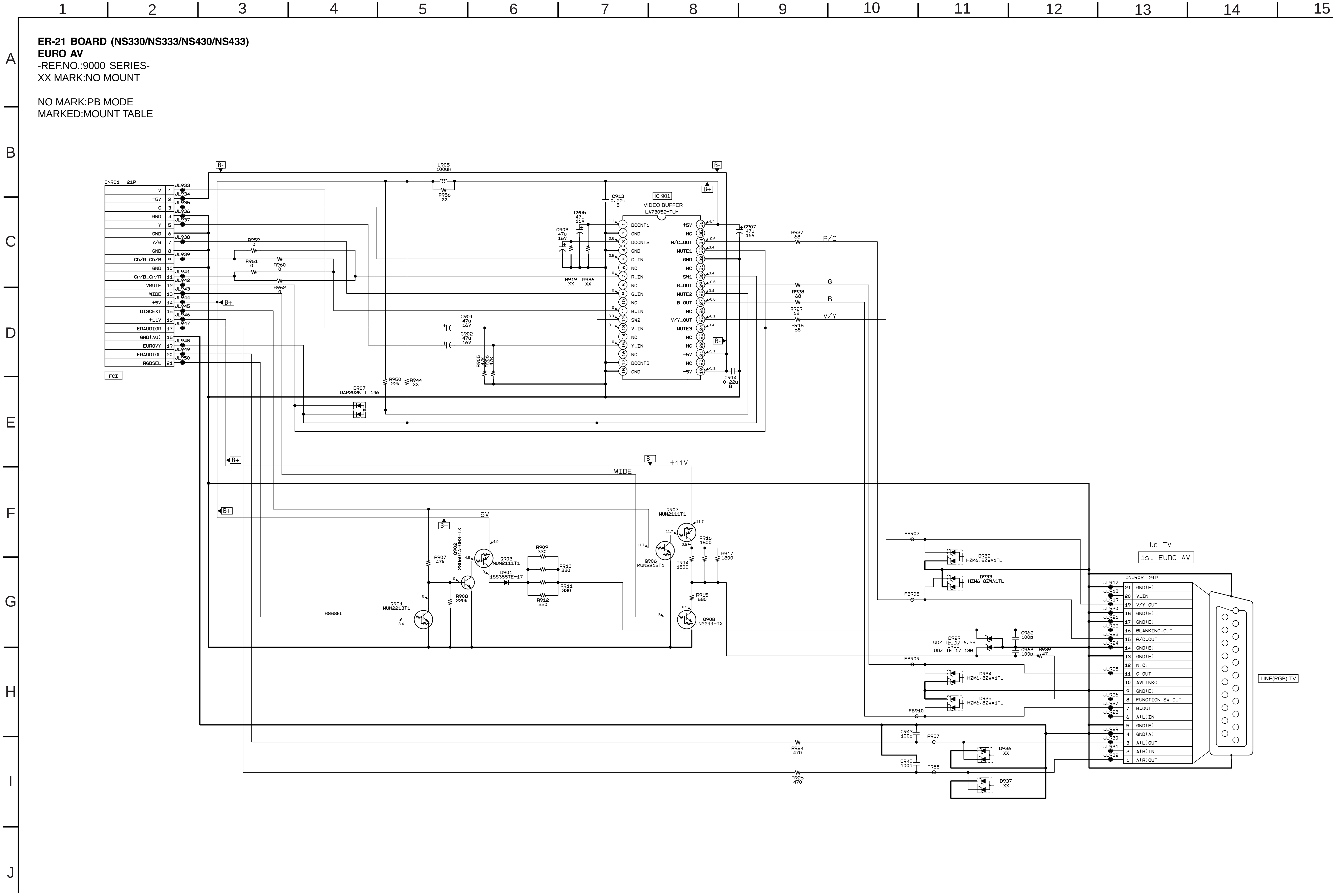
Q901	A-5
Q902	A-4
Q903	A-3
Q906	A-4
Q907	A-4
Q908	A-4
D901	A-3
D907	A-2
D929	A-1
D930	A-1
D932	A-3
D933	A-3
D934	A-3
D935	A-3
D936	A-1
D937	A-1

For printed wiring board

There are a few cases that the part printed on this diagram isn't mounted in this model.

For Schematic Diagram

- Refer to page 4-19 for printed wiring board of ER-21 board.



ER-21 BOARD (NS330/NS333/NS430/NS433)
EURO AV
-REF.NO.:9000 SERIES-
XX MARK:NO MOUNT

NO MARK:PB MODE
MARKED:MOUNT TABLE

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14
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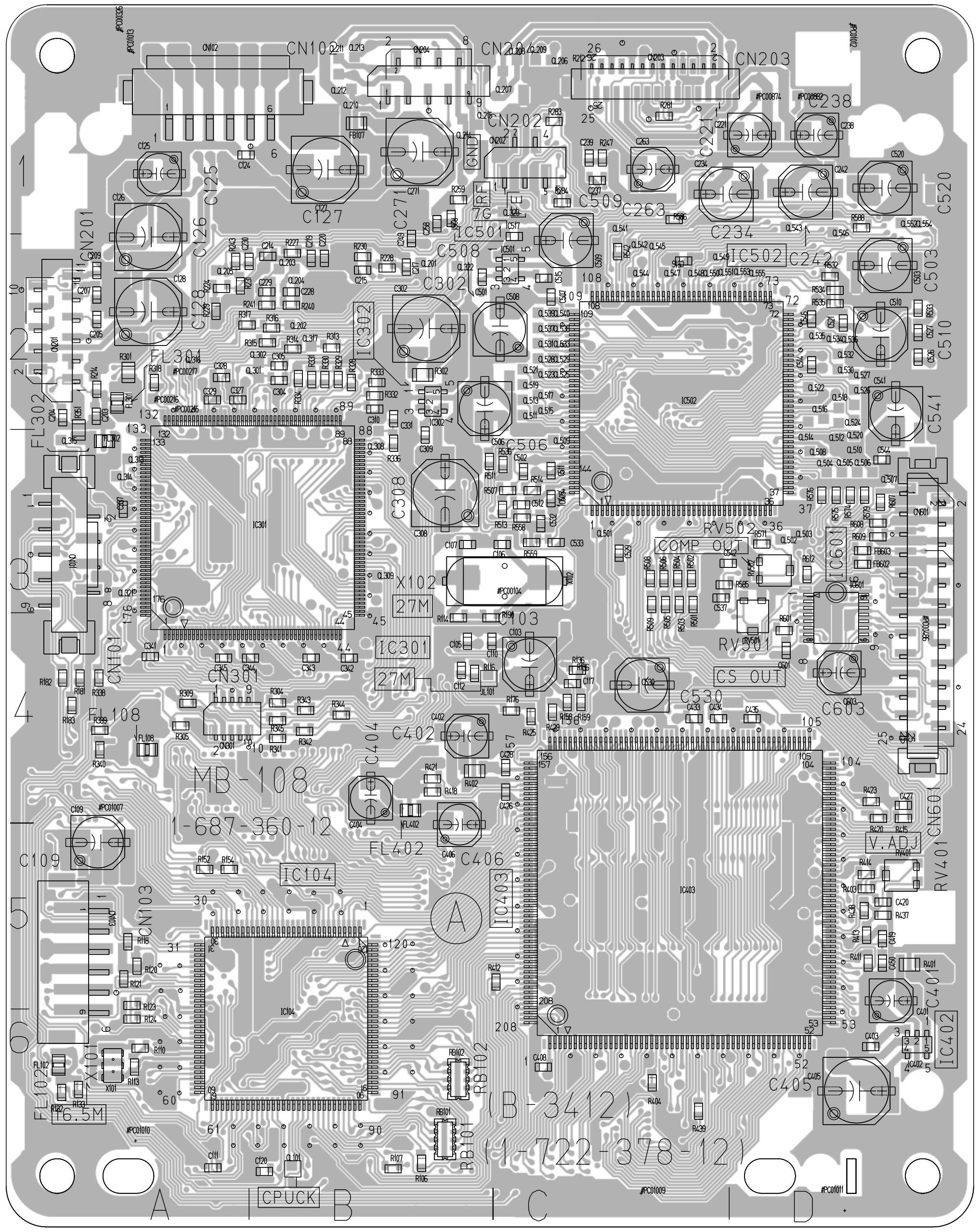
A
B
C
D
E
F
G
H
I
J
CN901 21P
V
-5V
C
GND
Y
GND
Y/G
GND
Cb/R_Cb/B
GND
Cr/B_Cr/R
VMUTE
WIDE
+5V
DISCEXT
+11V
ERAUDIOR
GND(AU)
EURDVY
ERAUDIOL
RGBSEL
FCI
JL933
JL934
JL935
JL936
JL937
JL938
JL939
JL941
JL942
JL943
JL944
JL945
JL946
JL947
JL948
JL949
JL950
B-
B+
L905 100uH
R956 XX
C913 0.22u B
IC 901
VIDEO BUFFER
LA73052-TLM
DCCNT1
GND
DCCNT2
GND
C_IN
NC
R_IN
NC
G_IN
NC
B_IN
SW2
V_IN
NC
Y_IN
NC
DCCNT3
GND
+5V
NC
R/C_OUT
MUTE1
GND
NC
SW1
G_OUT
MUTE2
B_OUT
NC
V/Y_OUT
MUTE3
NC
NC
-5V
NC
-5V
C903 47u 16V
C905 47u 16V
C907 47u 16V
R919 XX
R936 XX
R959 0
R961 0
R960 0
R962 0
C901 47u 16V
C902 47u 16V
R905 47k
R906 47k
R950 22k
R944 XX
D907 DAP202K-T-146
C914 0.22u B
R927 68
R928 68
R929 68
R918 68
R/C
G
B
V/Y
+11V
WIDE
+5V
Q907 MUN2111T1
Q906 MUN2213T1
Q908 UN2211-TX
R916 1800
R917 1800
R914 1800
R915 680
Q902 2SD601A-QRS-TX
Q903 MUN2111T1
D901 1SS355TE-17
R907 47k
R908 220k
R909 330
R910 330
R911 330
R912 330
Q901 MUN2213T1
RGBSEL
FB907
FB908
FB909
FB910
D932 HZM6.8ZWA1TL
D933 HZM6.8ZWA1TL
D934 HZM6.8ZWA1TL
D935 HZM6.8ZWA1TL
D929 UDZ-TE-17-6.2B
D930 UDZ-TE-17-13B
C962 100p
C963 100p
R939 47
C943 100p
C945 100p
R957
R958
D936 XX
D937 XX
R924 470
R926 470
to TV
1st EURO AV
CNJ902 21P
JL917
JL918
JL919
JL920
JL921
JL922
JL923
JL924
JL925
JL926
JL927
JL928
JL929
JL930
JL931
JL932
GND(E)
V_IN
V/Y_OUT
GND(E)
GND(E)
BLANKING_OUT
R/C_OUT
GND(E)
GND(E)
N.C.
G_OUT
AVLINKO
GND(E)
FUNCTION_SW_OUT
B_OUT
A(L)IN
GND(E)
GND(A)
A(L)OUT
A(R)IN
A(R)OUT
LINE(RGB)-TV

MB-108 (DVD/CD RF AMP,DIGITAL SERVO,MOTOR DRIVE,SERVO,AV DECODER,SD RAM, SYSTEM CONTROL,AUDIO DAC,PLL) PRINTED WIRING BOARD

• LF : Uses unleaded solder.

MB-108 BOARD SIDE A


MB-108
1-687-360-12
(B-3412)
(1-722-378-12)
A
B
C
D
1
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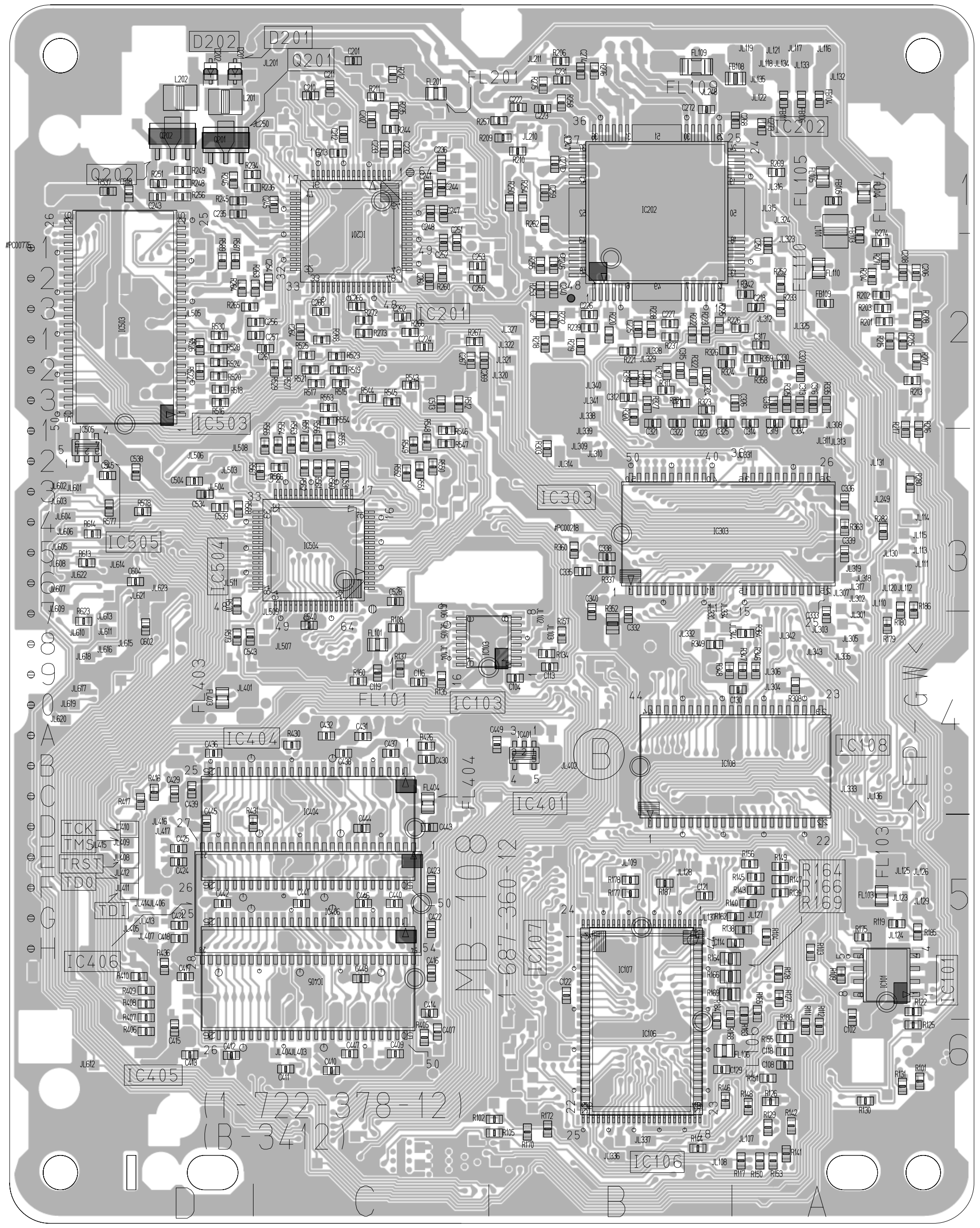
CN102
CN201
CN202
CN203
CN301
CN101
CN103
CN601
IC104
IC301
IC302
IC402
IC403
IC501
IC502
IC601
X102
27M
16.5M
COMP OUT
CS OUT
V.ADJ
RV401
RV501
RV502
CPUCK

MB-108 BOARD SIDE B


MB-108
1-687-360-12
(1-722-378-12)
(B-3412)
D
C
B
A
1
2
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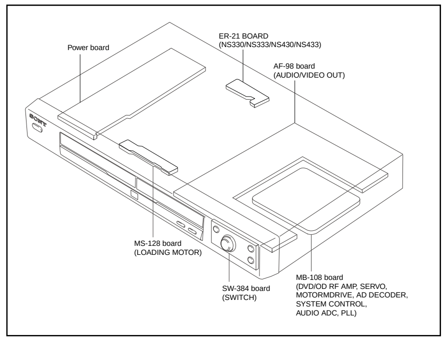
4
5
6
D201
D202
Q201
Q202
IC101
IC103
IC106
IC107
IC108
IC201
IC202
IC303
IC401
IC404
IC405
IC406
IC503
IC504
IC505
FL101
FL103
FL105
FL201
FL403
FL404
TCK
TMS
TRST
TDO
TDI
R164
R166
R169

MB-108 BOARD

A SIDE		**B SIDE**	
IC104	B-6	IC101	A-5
IC301	B-3	IC103	C-4
IC302	B-2	IC106	B-6
IC402	D-6	IC107	B-5
IC403	C-5	IC108	B-4
IC501	C-2	IC201	C-1
IC502	C-5	IC202	B-1
IC601	D-3	IC303	B-3
		IC401	B-4
		IC404	C-4
		IC405	C-5
		IC406	C-5
		IC503	D-2
		IC504	C-5
		IC505	D-3
		Q201	D-1
		Q202	D-1
		D201	D-1
		D202	D-1

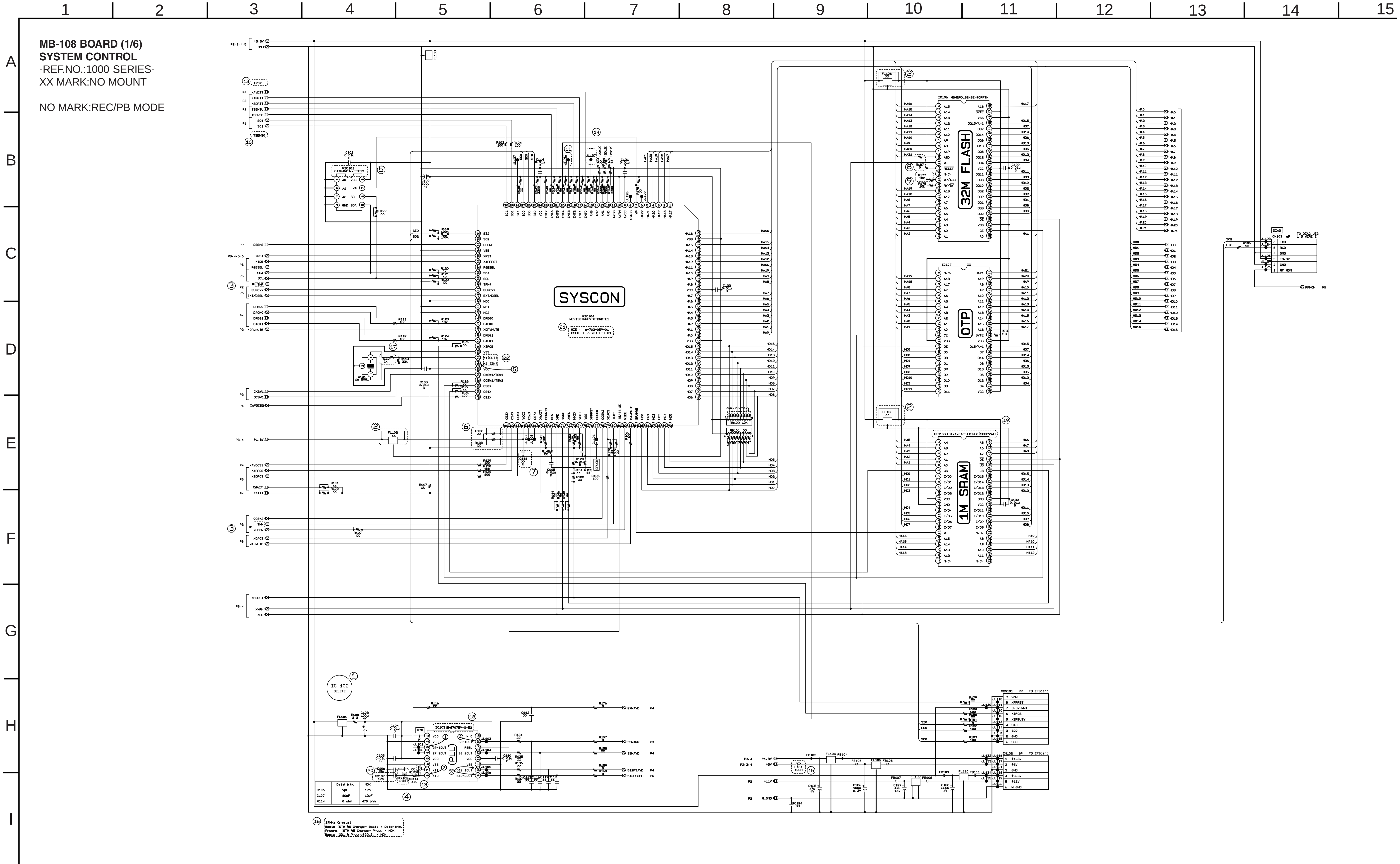
For printed wiring board

There are a few cases that the part printed on this diagram isn't mounted in this model.


Power board
ER-21 BOARD (NS330/NS333/NS430/NS433)
AF-98 board (AUDIO/VIDEO OUT)
MS-128 board (LOADING MOTOR)
SW-384 board (SWITCH)
MB-108 board (DVD/CD RF AMP, SERVO, MOTOR/DRIVE, AD DECODER, SYSTEM CONTROL, AUDIO ADC, PLL)

For Schematic Diagram

- Refer to page 4-23 for printed wiring board of MB-108 board.
- Refer to page 4-5 for waveform
- Refer to page 4-37 for Differential Part List



MB-108 BOARD (1/6)
SYSTEM CONTROL
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT

NO MARK:REC/PB MODE

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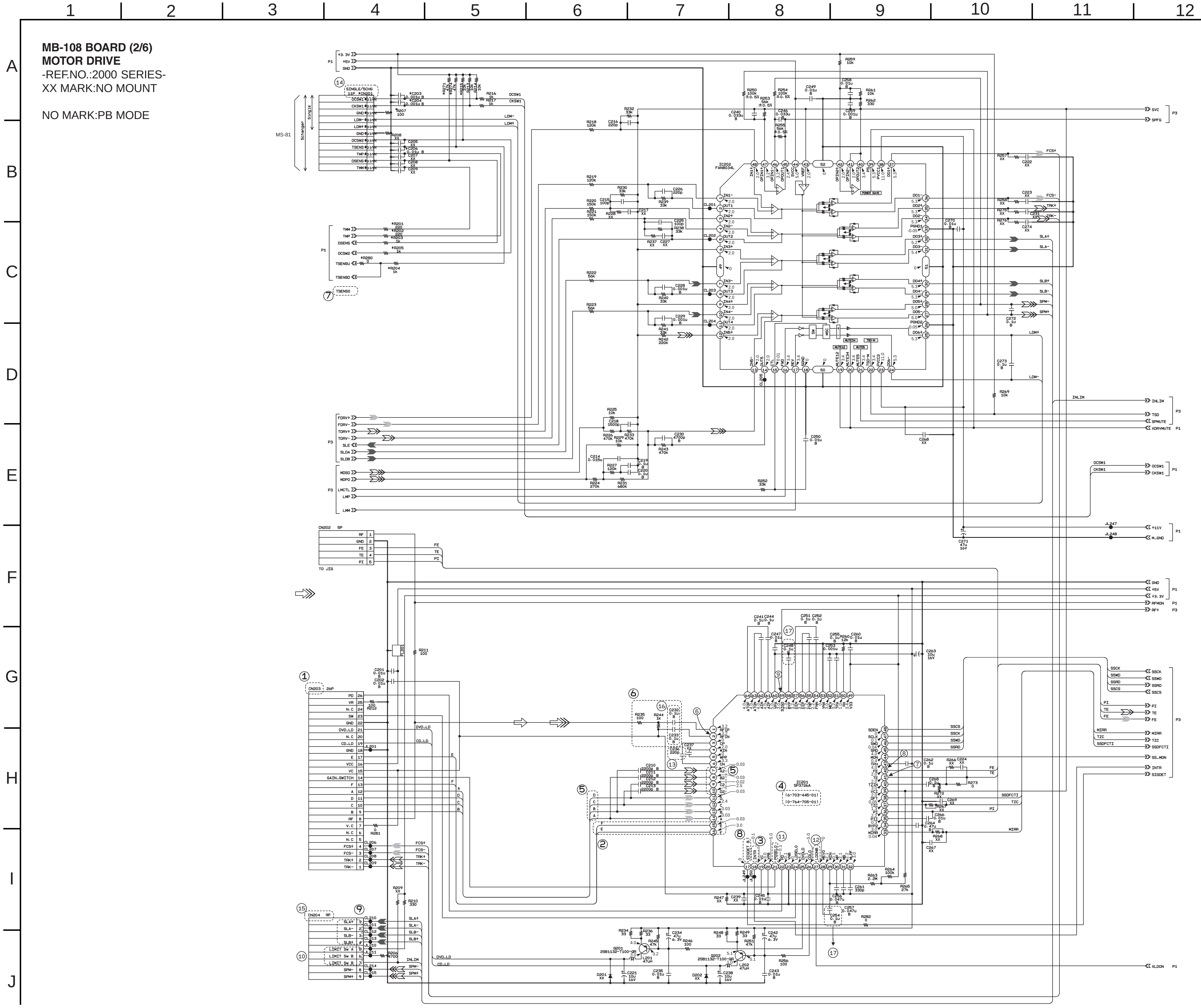
A
B
C
D
E
F
G
H
I
J
SYSCON
IC104
32M FLASH
IC106
OTP
IC107
1M SRAM
IC108
IC101
IC103
PLL
IC 102 DELETE
CN101 9P TO IFBoard
CN102 6P TO IFBoard
CN103 6P TO DIAG JIG

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SYSTEM CONTROL
MB-108 (1/6)

For Schematic Diagram

- Refer to page 4-23 for printed wiring board of MB-108 board.
- Refer to page 4-5 for waveform
- Refer to page 4-37 for Differential Part List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J
MB-108 BOARD (2/6)
MOTOR DRIVE
-REF.NO.:2000 SERIES-
XX MARK:NO MOUNT
NO MARK:PB MODE
MS-81
P1
P3
CN202 6P
TO JIS
CN203 26P
CN204 9P
IC202 FAN8034L
IC201 SP3723A
(6-703-445-01)
(6-764-705-01)
Q201 2SB1132-T100-QR
Q202 2SB1132-T100-QR
SVC
SPFG
INLIM
TSD
SPMUTE
XDRVMUTE
DCSW1
CKSW1
+11V
M_GND
GND
+5V
+3.3V
RFMON
RF+
SSCK
SSWD
SSRD
SSCS
PI
TE
FE
MIRR
TZC
SSDFCTI
SS_MON
INTR
SIGDET
XLDON

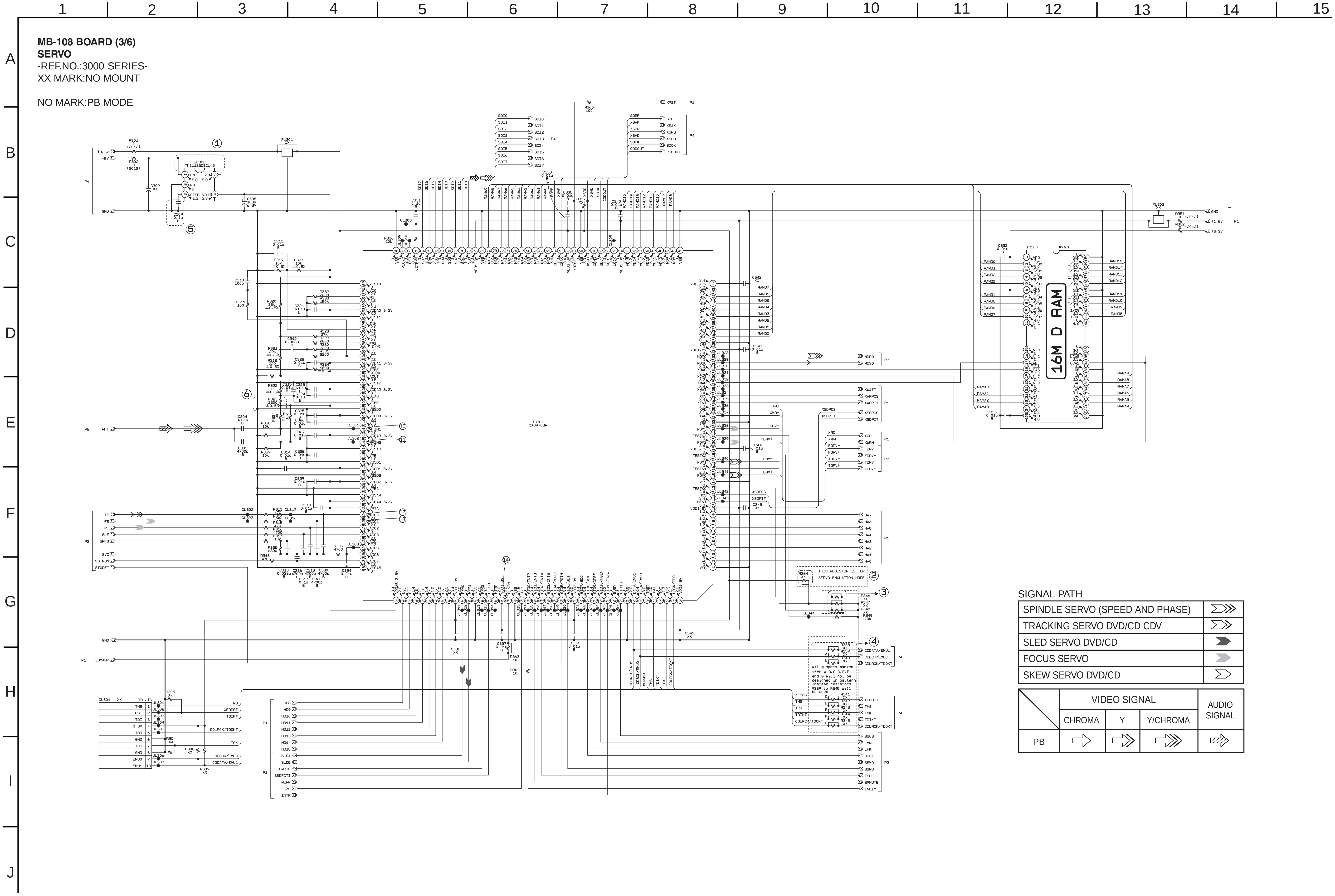
SIGNAL PATH

SPINDLE SERVO (SPEED AND PHASE)	⇛
TRACKING SERVO DVD/CD CDV	⇛
SLED SERVO DVD/CD	➤
FOCUS SERVO	➤
SKEW SERVO DVD/CD	⇨

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
PB	⇨	⇛	⇛	⇨

For Schematic Diagram

- Refer to page 4-23 for printed wiring board of MB-108 board.
- Refer to page 4-5 for waveform
- Refer to page 4-37 for Differential Part List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F
G
H
I
J
MB-108 BOARD (3/6)
SERVO
-REF.NO.:3000 SERIES-
XX MARK:NO MOUNT
NO MARK:PB MODE
IC302
TK11133CSCL-G
IC301
CXD9703R
IC303
16M D RAM
FL301
FL302
CN301
TO JIG
THIS RESISTOR IS FOR SERVO EMULATION MODE
All jumpers marked with A-B-C-D-E-F and G will not be designed in pattern. Instead resistors R339 to R345 will be used.
P1
P2
P4
GND
+3.3V
+5V
+1.8V
RF+
TE
FE
PI
SLE
SPFG
SVC
SS_MON
SIGDET
33MARP
XRST
SDEF
XSAK
XSRQ
XSHD
SDCK
CDDOUT
MDPO
MDSO
XWAIT
XARPCS
XARPIT
XSDPCS
XSDPIT
XRD
XWRH
FDRV-
FDRV+
TDRV-
TDRV+
HA7
HA6
HA5
HA4
HA3
HA2
HA1
HA0
CDDATA/EMU1
CDBCK/EMU0
CDLRCK/TDOKT
XFRRST
TMS
TCK
TDIKT
SSCS
LMM
LMP
SSCK
SSWD
SSRD
TSD
SPMUTE
INLIM
HD8
HD9
HD10
HD11
HD12
HD13
HD14
HD15
SLDA
SLDB
LMCTL
SSDFCTI
MIRR
TZC
INTR
①
②
③
④
⑤
⑥
⑩
⑪
⑫
⑬
⑭

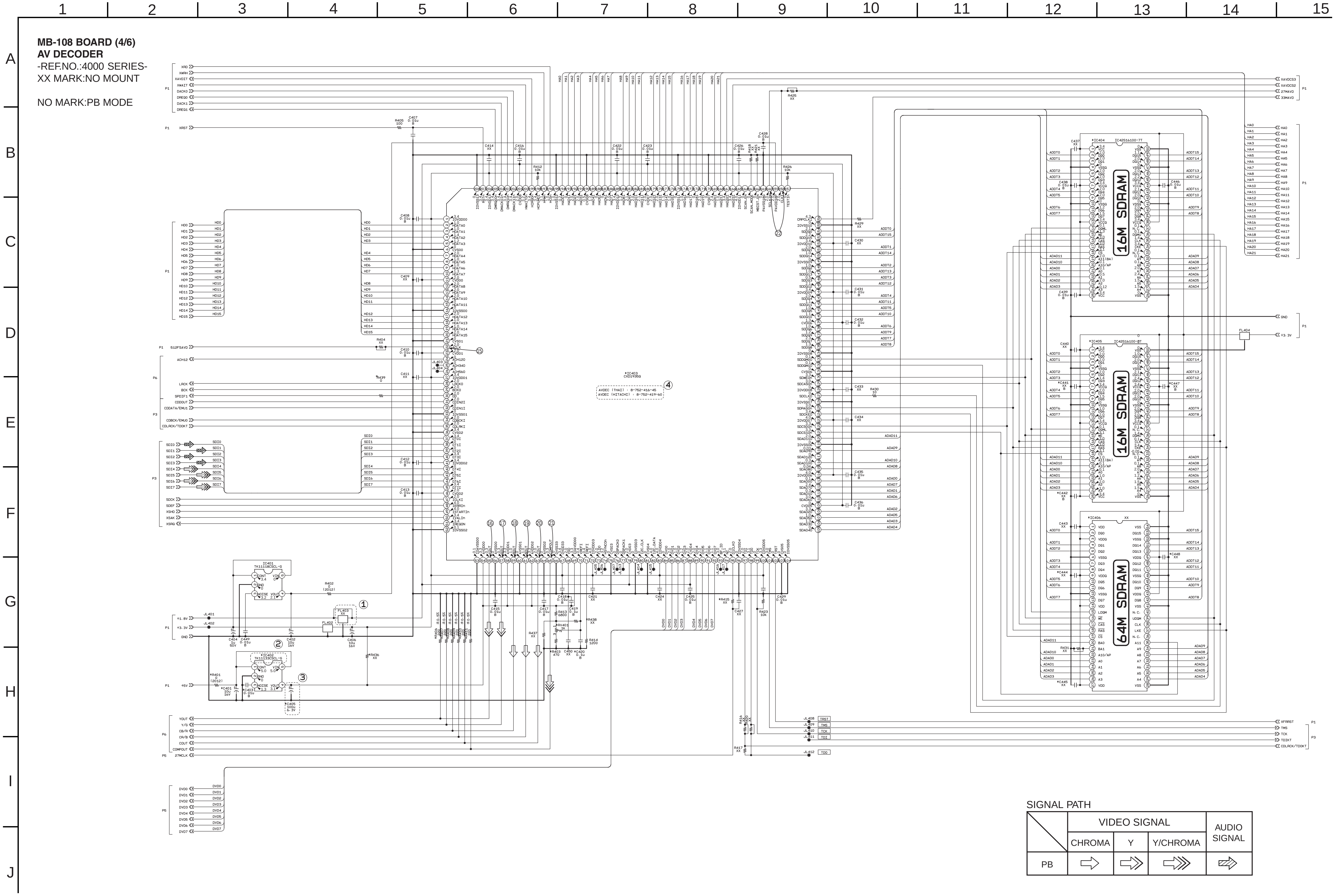
SIGNAL PATH

SPINDLE SERVO (SPEED AND PHASE)	⇛
TRACKING SERVO DVD/CD CDV	⇛
SLED SERVO DVD/CD	➤
FOCUS SERVO	➤
SKEW SERVO DVD/CD	⇨

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
PB	⇨	⇛	⇛	⇨

For Schematic Diagram

- Refer to page 4-23 for printed wiring board of MB-108 board.
- Refer to page 4-5 for waveform
- Refer to page 4-37 for Differential Part List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D
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F
G
H
I
J
MB-108 BOARD (4/6)
AV DECODER
-REF.NO.:4000 SERIES-
XX MARK:NO MOUNT
NO MARK:PB MODE
IC403
CXD1935Q
AVDEC (THAI) : 8-752-416-45
AVDEC (HITACHI) : 8-752-419-60
IC404 IC42S16100-7T
16M SDRAM
IC405 IC42S16100-7T
16M SDRAM
IC406
64M SDRAM
IC401 TK11118CSCL-G
IC402 TK11133CSCL-G
FL402
FL403
FL404
P1
P3
P5
P6

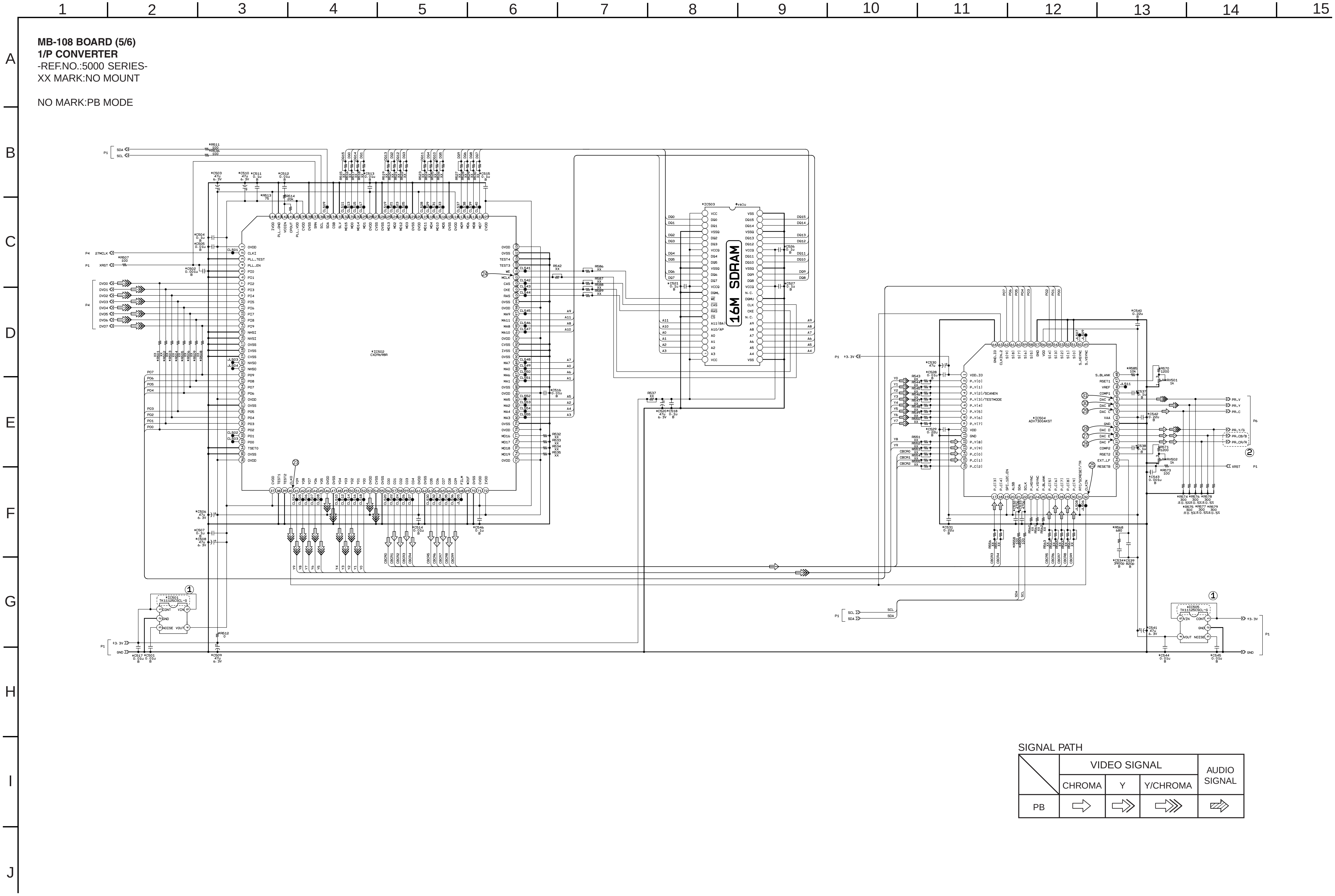
SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
PB	⇨	⇨	⇨	⇨

AV DECODER
MB-108 (4/6)

For Schematic Diagram

- Refer to page 4-23 for printed wiring board of MB-108 board.
- Refer to page 4-5 for waveform
- Refer to page 4-37 for Differential Part List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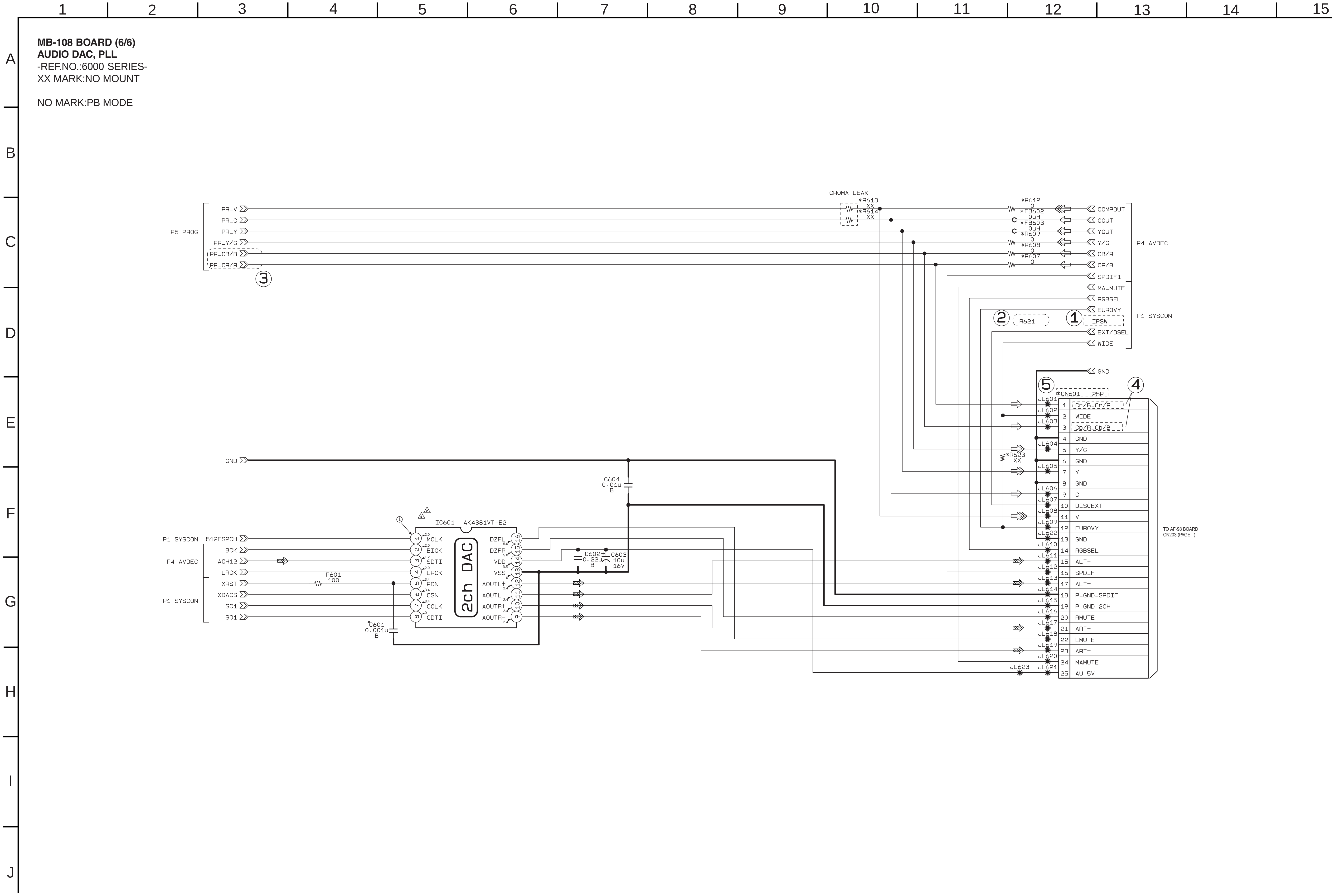
H
I
J
MB-108 BOARD (5/6)
1/P CONVERTER
-REF.NO.:5000 SERIES-
XX MARK:NO MOUNT
NO MARK:PB MODE
*IC502
CXD9698R
*IC503
16M SDRAM
*IC504
ADV7300AKST
*IC501
TK11125CSCL-G
*IC505
TK11125CSCL-G
P1
P4
SDA
SCL
27MCLK
XRST
DVD0
DVD1
DVD2
DVD3
DVD4
DVD5
DVD6
DVD7
+3.3V
GND
PR.V
PR.Y
PR.C
PR.Y/G
PR.CB/B
PR.CR/R
Pb
①
②

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
PB	⇨	⇛	⇛	⇨

For Schematic Diagram

- Refer to page 4-23 for printed wiring board of MB-108 board.
- Refer to page 4-5 for waveform
- Refer to page 4-37 for Differential Part List


MB-108 BOARD (6/6)
AUDIO DAC, PLL
-REF.NO.:6000 SERIES-
XX MARK:NO MOUNT
NO MARK:PB MODE
P5 PROG
PR_V
PR_C
PR_Y
PR_Y/G
PR_CB/B
PR_CR/R
③
CROMA LEAK
*R613 XX
*R614 XX
*R612 0
*FB602 0uH
*FB603 0uH
*R609 0
*R608 0
*R607 0
COMPOUT
COUT
YOUT
Y/G
CB/R
CR/B
SPDIF1
MA_MUTE
RGBSEL
EUROVY
IPSW
EXT/DSEL
WIDE
P4 AVDEC
P1 SYSCON
②
R621
①
GND
⑤
④
*CN601 25P
JL601
JL602
JL603
JL604
*R623 XX
JL605
JL606
JL607
JL608
JL609
JL622
JL610
JL611
JL612
JL613
JL614
JL615
JL616
JL617
JL618
JL619
JL620
JL623
JL621
1 Cr/B_Cr/R
2 WIDE
3 Cb/R_Cb/B
4 GND
5 Y/G
6 GND
7 Y
8 GND
9 C
10 DISCEXT
11 V
12 EUROVY
13 GND
14 RGBSEL
15 ALT-
16 SPDIF
17 ALT+
18 P_GND_SPDIF
19 P_GND_2CH
20 RMUTE
21 ART+
22 LMUTE
23 ART-
24 MAMUTE
25 AU+5V
TO AF-98 BOARD CN203 (PAGE)
GND
C604 0.01u B
IC601 AK4381VT-E2
2ch DAC
P1 SYSCON 512FS2CH
BCK
P4 AVDEC ACH12
LRCK
XRST
XDACS
P1 SYSCON SC1
SO1
R601 100
1 MCLK
2 BICK
3 SDTI
4 LRCK
5 PDN
6 CSN
7 CCLK
8 CDTI
16 DZFL
15 DZFR
14 VDD
13 VSS
12 AOUTL+
11 AOUTL-
10 AOUTR+
9 AOUTR-
C602 0.22u B
C603 10u 16V
*C601 0.001u B
A B C D E F G H I J
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

AUDIO DAC, PLL
MB-108 (6/6)

MB-108 Borad Differential Part List

[MB-108 (1/6)]

	NS325	NS330	NS333/NS430/ NS433/NS530	NS725P	NS730P
C106	9p 50V CH	9p 50V CH	9p 50V CH	9p 50V CH	12p 50V CH
C107	10p 50V CH	10p 50V CH	10p 50V CH	10p 50V CH	12p 50V CH
C124	xx	xx	xx	xx	xx
C130	xx	0.01u 25v B	0.01u 25v B	xx	0.01u 25v B
CN101	9P	9P	9P	9P	9P
R164	xx	22k	12k	12k	4700
R166	xx	xx	xx	47k	22k
R169	xx	12k	47k	47k	6800
IC101	CAT24WC16J	CAT24WC16J	CAT24WC16J	CAT24WC16J	CAT24WC16J
IC104	MB91307RPF	MB91307RPF	MB91307RPF	MB91307RPF	MB91307RPF
IC108	xx	IDT71V016S	IDT71V016S	xx	IDT71V016S

[MB-108 (4/6)]

	NS325	NS330	NS333/NS430/ NS530	NS725P	NS730P
C401	10u 16V	10u 16V	10u 16V	xx	xx
C403	0.01u 25V B	0.01u 25V B	0.01u 25V B	xx	xx
C405	100u 6.3V	100u 6.3V	100u 6.3V	xx	xx
C420	0.1u 16V B	0.1u 16V B	0.1u 16V B	xx	xx
IC402	TK11133CSC	TK11133CSC	TK11133CSC	xx	xx
IC403	CXD1935Q	CXD1935Q	CXD1935Q	CXD1935Q	CXD1935Q
R401	0	0	0	xx	xx
R403	470	470	470	xx	xx
R406	220	220	220	xx	xx
R407	220	220	220	xx	xx
R408	220	220	220	xx	xx
R409	220	220	220	xx	xx
R410	220	220	220	xx	xx
R411	220	220	220	xx	xx
R415	xx	xx	xx	10	10
R436	xx	xx	xx	0	0
R438	xx	xx	xx	0	0
R439	0	0	0	0	0
RV401	1k	1k	1k	xx	xx

[MB-108 (4/6) AV DECODER]

	NS325	NS330/NS333 NS430/NS433	NS530	NS725P	NS730P
C441	xx	0.01u 25V B	0.01u 25V B	0.01u 25V B	0.01u 25V B
C442	xx	0.01u 25V B	0.01u 25V B	0.01u 25V B	0.01u 25V B
C447	xx	0.01u 25V B	0.01u 25V B	0.01u 25V B	0.01u 25V B
IC404	GLT5160L16	GLT5160L16	GLT5160L16	GLT5160L16	GLT5160L16
IC405	xx	GLT5160L16	GLT5160L16	GLT5160L16	GLT5160L16

[MB-108 (5/6) I/P CONVERTER]

	NS325	NS330	NS333/NS430/ NS433/NS530	NS725P	NS730P
P5	xx	xx	xx	Mount	Mount

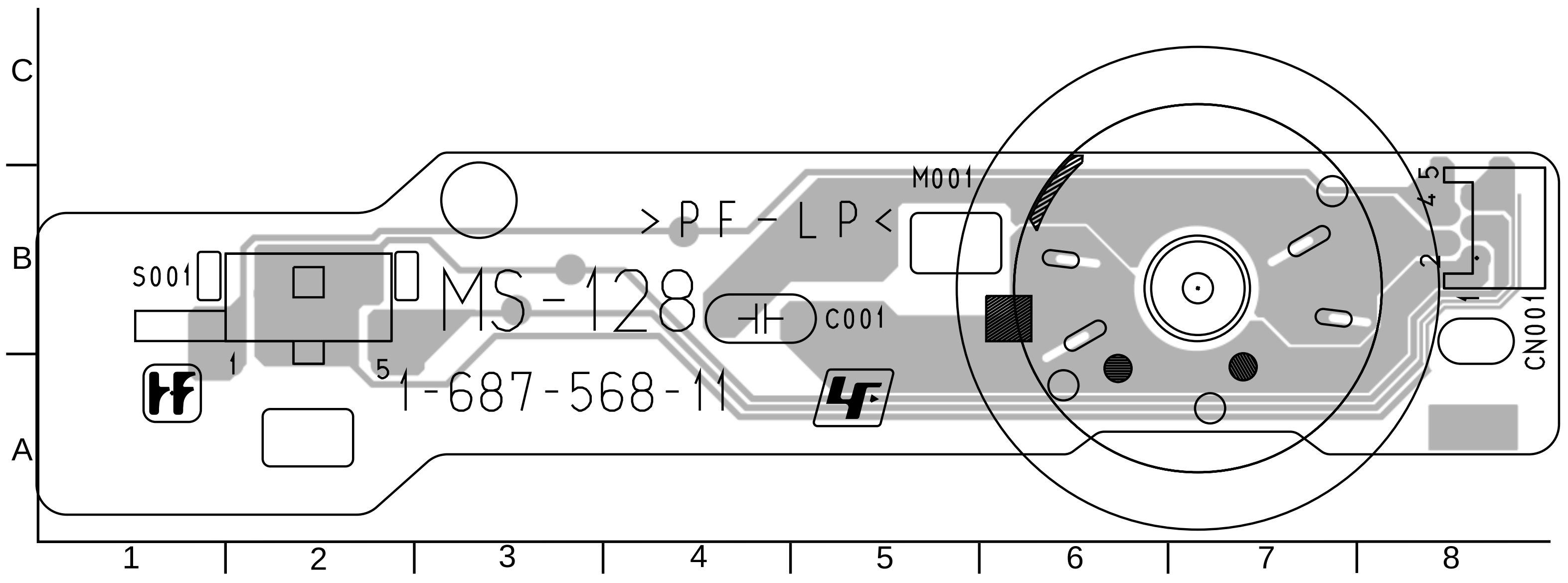
[MB-108 (6/6) AUDIO]

	NS325	NS330	NS333/NS430/ NS433/NS530	NS725P	NS730P
FB602	xx	xx	xx	xx	xx
FB603	xx	xx	xx	xx	xx
R607	0	0	0	xx	xx
R608	0	0	0	xx	xx
R609	0	0	0	xx	xx
R612	0	0	0	xx	xx
R613	xx	xx	xx	0	0
R614	xx	xx	xx	0	0

MB-128 (MECHA DECK) PRINTED WIRING BOARD

- LF : Uses unleaded solder.

MS-128 BOARD


C
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A
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8
S001
1
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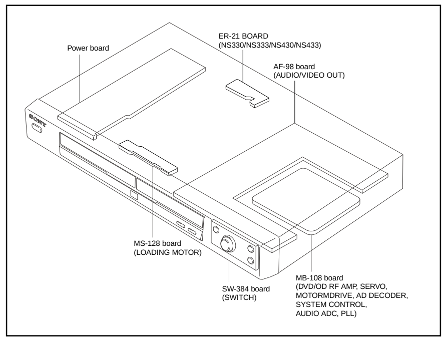
>PF-LP<
M001
MS-128
C001
1-687-568-11
1
2
4
5
CN001

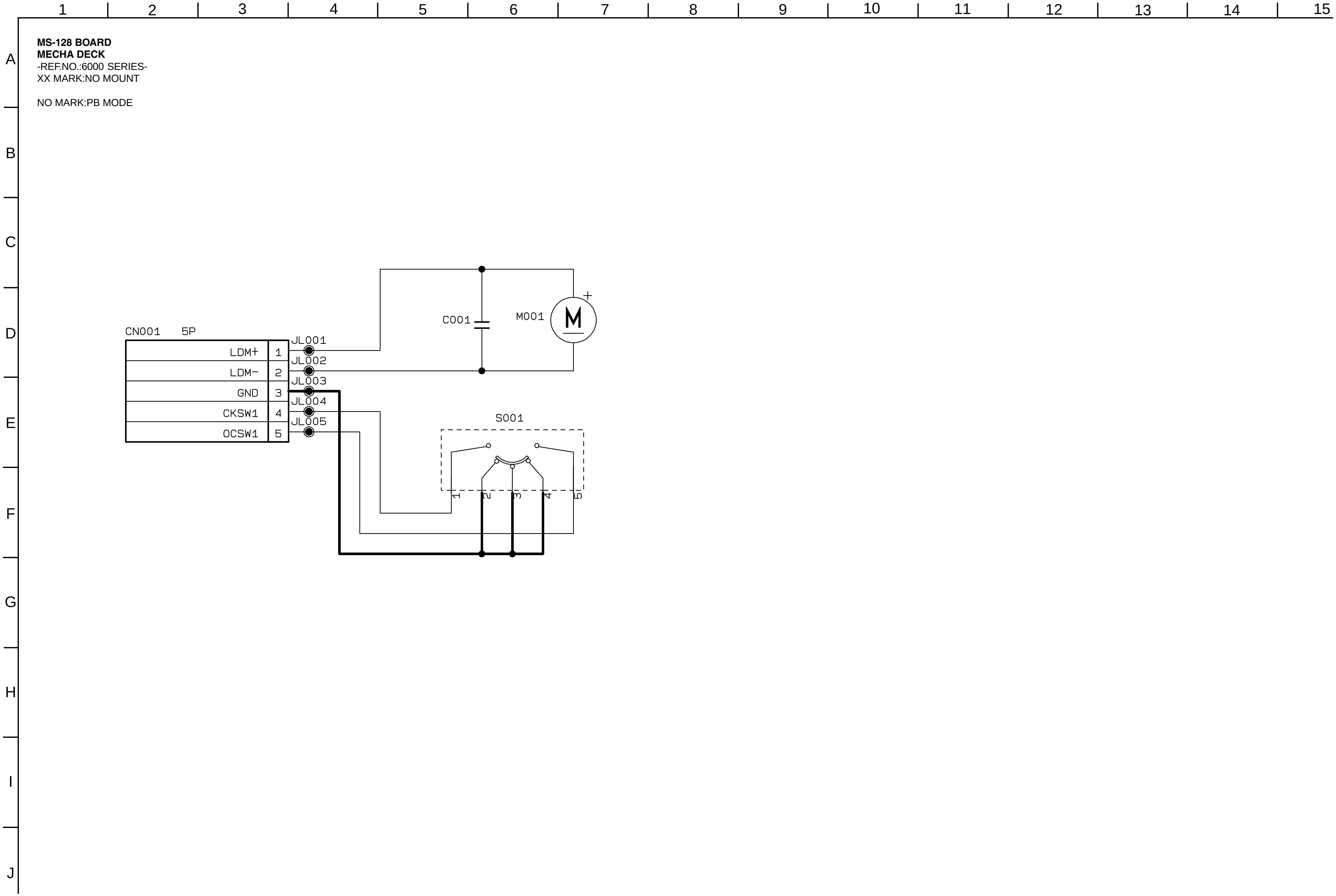

Power board
ER-21 BOARD
(NS330/NS333/NS430/NS433)
AF-98 board
(AUDIO/VIDEO OUT)
MS-128 board
(LOADING MOTOR)
SW-384 board
(SWITCH)
MB-108 board
(DVD/OD RF AMP, SERVO,
MOTORMDRIVE, AD DECODER,
SYSTEM CONTROL,
AUDIO ADC, PLL)

For printed wiring board

There are a few cases that the part printed on this diagram isn't mounted in this model.

For Schematic Diagram

- Refer to page 4-41 for printed wiring board of MS-128 board.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J
MS-128 BOARD
MECHA DECK
-REF.NO.:6000 SERIES-
XX MARK:NO MOUNT
NO MARK:PB MODE
CN001 5P
LDM+ 1
LDM– 2
GND 3
CKSW1 4
OCSW1 5
JL001
JL002
JL003
JL004
JL005
C001
M001
M
+
S001
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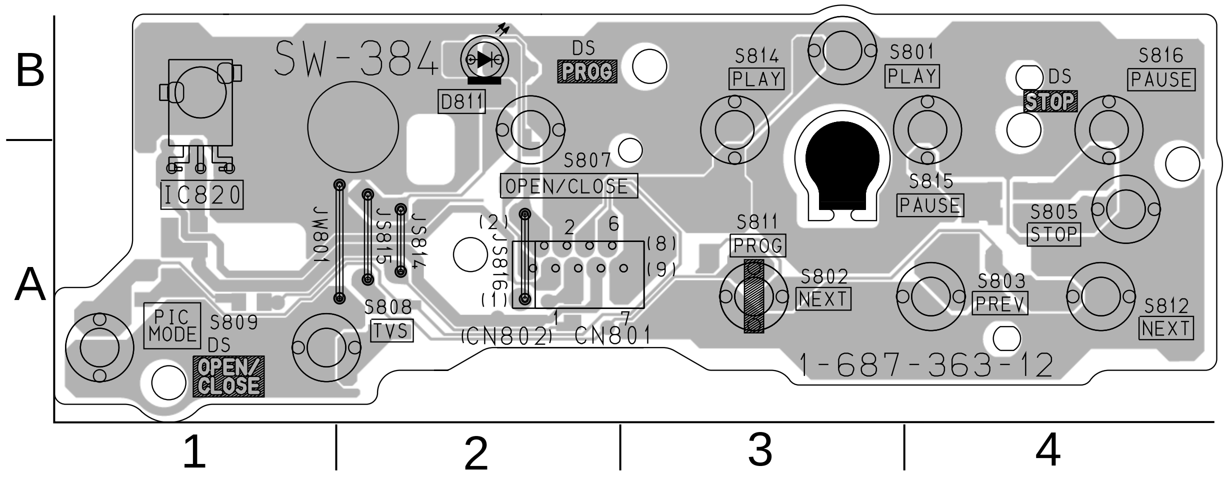
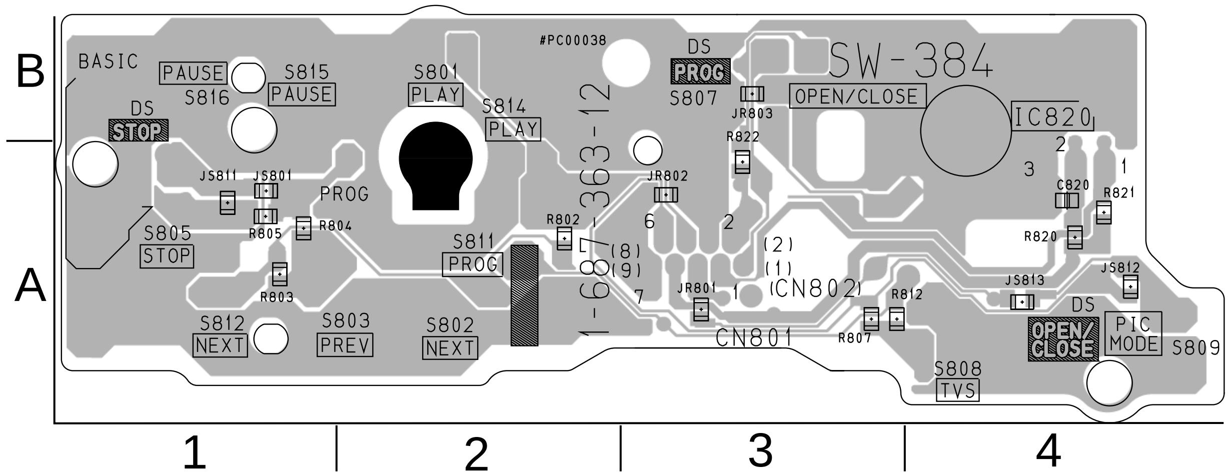
SW-384 (SWITCH) PRINTED WIRING BOARD

- LF : Uses unleaded solder.

SW-384 BOARD A SIDE


B
A
1
2
3
4
SW-384
D811
DS
PROG
S814
PLAY
S801
PLAY
DS
STOP
S816
PAUSE
IC820
S807
OPEN/CLOSE
S815
PAUSE
S805
STOP
JW801
JS815
JS814
JS816
(2)
2
6
(8)
(9)
(1)
1
7
S811
PROG
S802
NEXT
S803
PREV
S812
NEXT
PIC
MODE
S809
DS
OPEN/
CLOSE
S808
TVS
CN802
CN801
1-687-363-12

SW-384 BOARD B SIDE

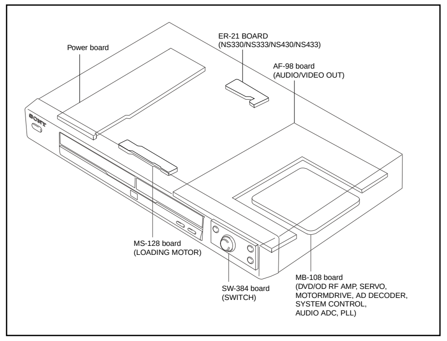

B
A
1
2
3
4
BASIC
PAUSE
S816
S815
PAUSE
S801
PLAY
S814
PLAY
#PC00038
DS
PROG
S807
JR803
OPEN/CLOSE
SW-384
IC820
DS
STOP
R822
JR802
JS811
JS801
PROG
R805
R804
S805
STOP
R803
R802
1-687-363-12
6
2
(8)
(9)
7
(2)
(1)
3
2
1
C820
R821
R820
S811
PROG
JR801
1
CN802
R812
JS813
JS812
DS
OPEN/
CLOSE
PIC
MODE
S809
S812
NEXT
S803
PREV
S802
NEXT
CN801
R807
S808
TVS

For printed wiring board

There are a few cases that the part printed on this diagram isn't mounted in this model.

SW-384 BOARD

A SIDE	
IC820	A-1
D811	B-3
B SIDE	
IC820	B-4

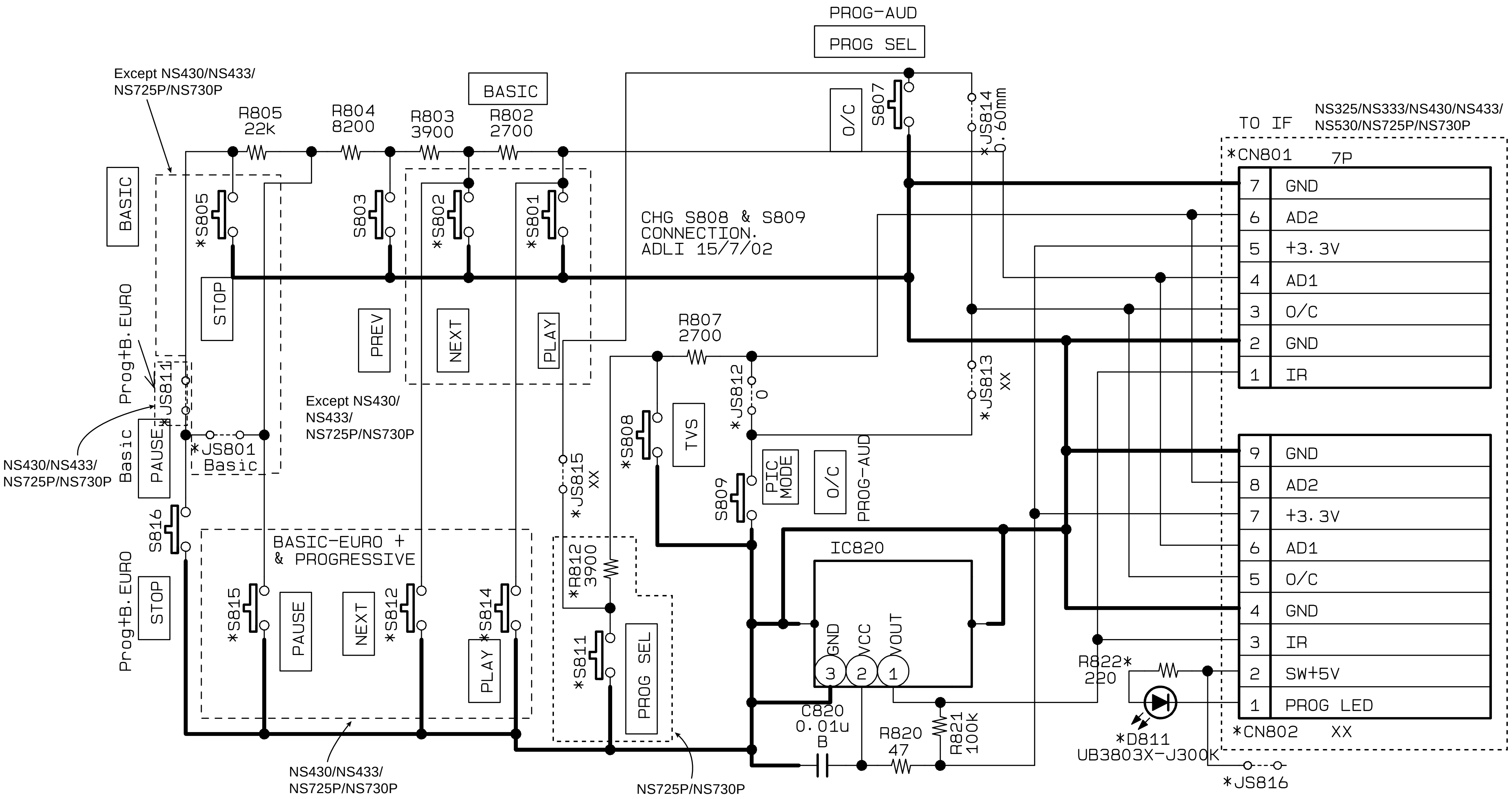

Power board
ER-21 BOARD
(NS330/NS333/NS430/NS433)
AF-98 board
(AUDIO/VIDEO OUT)
MS-128 board
(LOADING MOTOR)
SW-384 board
(SWITCH)
MB-108 board
(DVD/OD RF AMP, SERVO,
MOTORMDRIVE, AD DECODER,
SYSTEM CONTROL,
AUDIO ADC, PLL)

For Schematic Diagram

- Refer to page 4-45 for printed wiring board of SW-384 board.

SW-384 BOARD
SWITCH
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT

NO MARK:REC/PB MODE


PROG-AUD
PROG SEL
Except NS430/NS433/ NS725P/NS730P
R805 22k
R804 8200
R803 3900
R802 2700
BASIC
O/C
S807
*JS814 0.60mm
TO IF
NS325/NS333/NS430/NS433/ NS530/NS725P/NS730P
*CN801 7P
7 GND
6 AD2
5 +3.3V
4 AD1
3 O/C
2 GND
1 IR
BASIC
*S805
S803
*S802
*S801
CHG S808 & S809 CONNECTION. ADLI 15/7/02
STOP
PREV
NEXT
PLAY
R807 2700
*JS812 0
*JS813 XX
Prog+B.EURO
*JS811
Except NS430/ NS433/ NS725P/NS730P
*JS801 Basic
NS430/NS433/ NS725P/NS730P
Basic
PAUSE
*S808
TVS
*JS815 XX
S809
PIC MODE
O/C
PROG-AUD
9 GND
8 AD2
7 +3.3V
6 AD1
5 O/C
4 GND
3 IR
2 SW+5V
1 PROG LED
S816
BASIC-EURO + & PROGRESSIVE
*R812 3900
IC820
Prog+B.EURO
STOP
*S815
PAUSE
NEXT
*S812
*S814
PLAY
*S811
PROG SEL
GND
VCC
VOUT
3
2
1
R822* 220
C820 0.01u B
R820 47
R821 100k
*D811 UB3803X-J300K
*CN802 XX
*JS816
NS430/NS433/ NS725P/NS730P
NS725P/NS730P

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

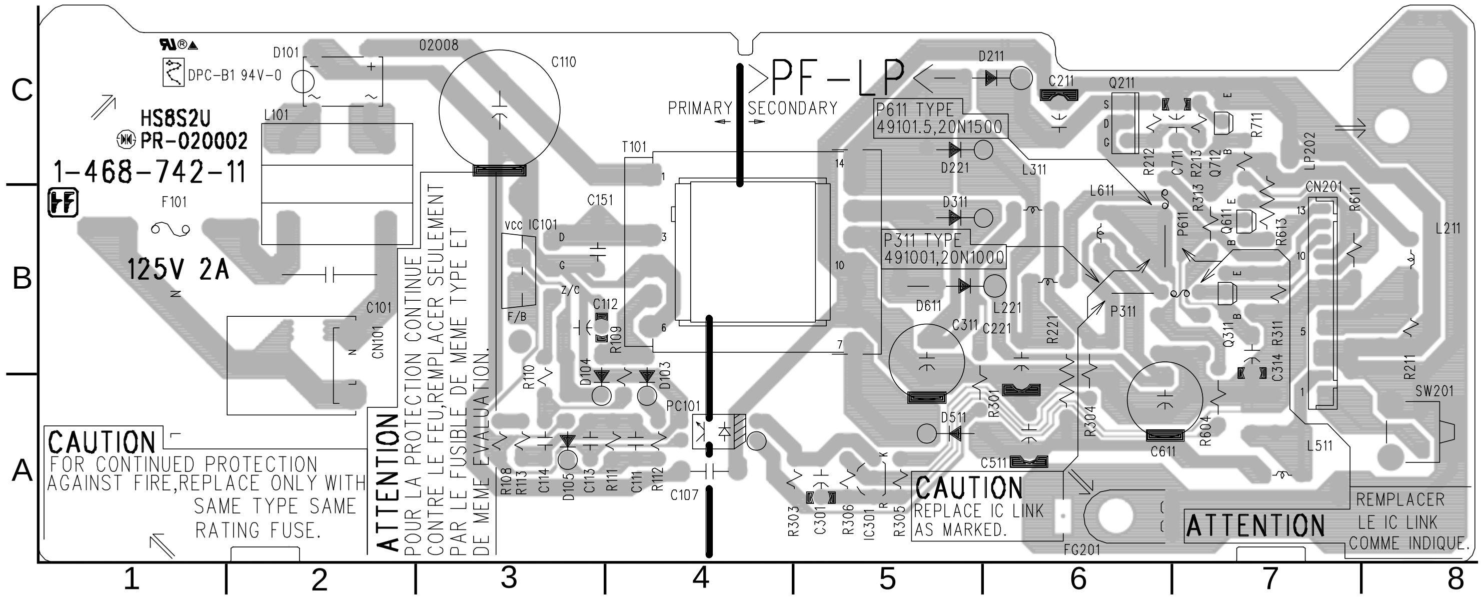
SW-384 Borad Differential Part List

	NS325/NS330/ NS530	NS430/NS433	NS725/NS730
JS801	121629591	xx	xx
JS811	xx	121629591	121629591
R812	xx	xx	3900
S801	176219621	xx	xx
S802	176219621	xx	xx
S805	176219621	xx	xx
S811	xx	xx	176219621
S812	xx	176219621	176219621
S814	xx	176219621	176219621
S815	xx	176219621	176219621

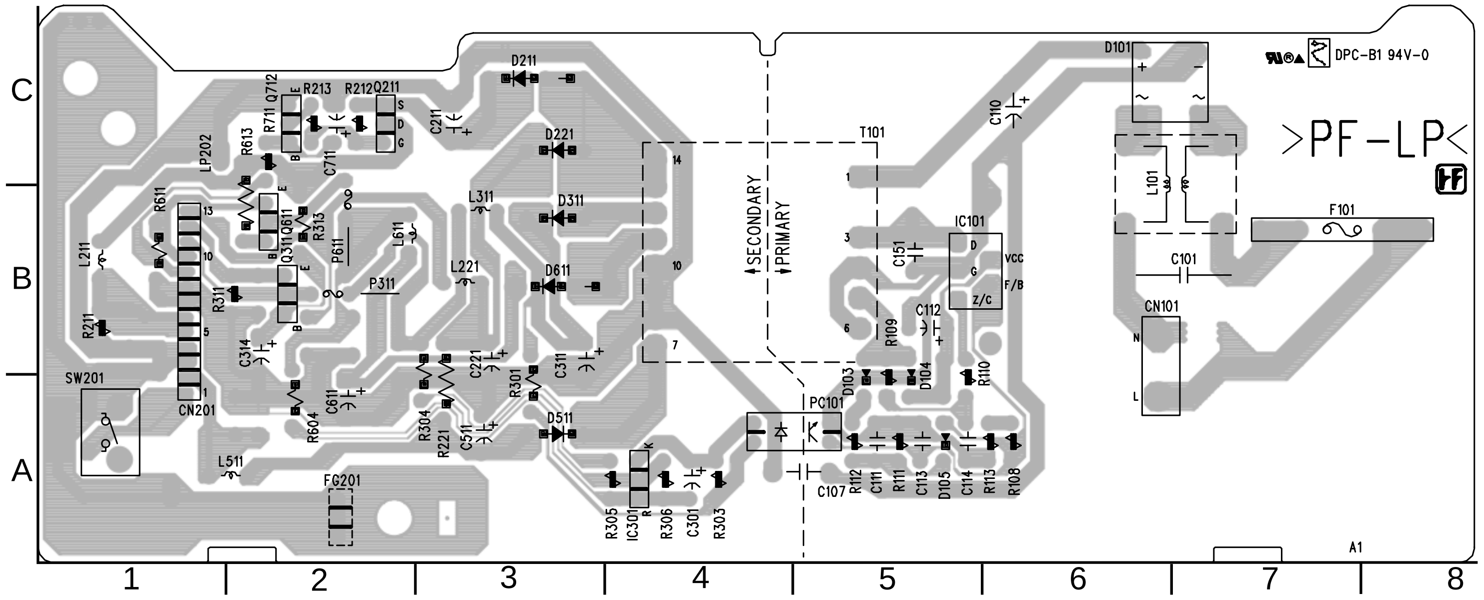
HS8S2U (SWITCHING REGULATOR) PRINTED WIRING BOARD

- LF : Uses unleaded solder.

POWER BOARD (SW REG) SIDE A
(HS8S2U) (NS325:US,CND,MX /NS725P:US,CND)

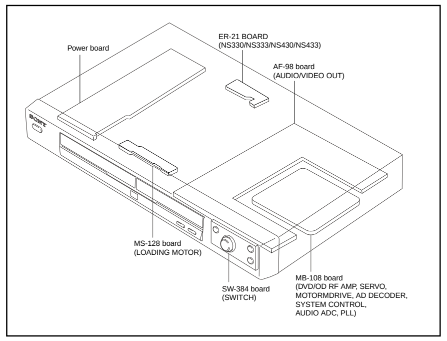

C
B
A
1
2
3
4
5
6
7
8
DPC-B1 94V-0
HS8S2U
PR-020002
1-468-742-11
F101
125V 2A
D101
Q2008
C110
L101
C101
CN101
IC101
VCC
F/B
Z/C
C151
C112
R109
D104
D103
PC101
R110
T101
>PF-LP<
PRIMARY
SECONDARY
P611 TYPE
49101.5,20N1500
P311 TYPE
491001,20N1000
D211
C211
Q211
D221
D311
L311
L611
D611
C311
L221
C221
R221
P311
R301
R304
D511
C511
C611
R604
Q311
R311
C314
Q611
Q712
R711
R212
R213
C711
R313
P611
R613
LP202
CN201
R611
L211
R211
SW201
L511
FG201
R108
R113
C114
D105
C113
R111
C111
R112
C107
R303
C301
R306
IC301
R305
CAUTION
FOR CONTINUED PROTECTION
AGAINST FIRE,REPLACE ONLY WITH
SAME TYPE SAME
RATING FUSE.
ATTENTION
POUR LA PROTECTION CONTINUE
CONTRE LE FEU,REMPLACER SEULEMENT
PAR LE FUSIBLE DE MEME TYPE ET
DE MEME EVALUATION.
CAUTION
REPLACE IC LINK
AS MARKED.
ATTENTION
REMPLACER
LE IC LINK
COMME INDIQUE.

POWER BOARD (SW REG) SIDE B
(HS8S2U) (NS325:US,CND,MX /NS725P:US,CND)


C
B
A
1
2
3
4
5
6
7
8
D211
D221
D311
D611
D511
R213
R212
Q211
Q712
R711
C711
C211
R613
LP202
R611
L211
R211
SW201
CN201
Q611
Q311
R313
P611
L611
L311
L221
P311
R311
C314
C611
R604
R304
R221
C511
C221
R301
C311
L511
FG201
T101
SECONDARY
PRIMARY
C110
IC101
VCC
F/B
Z/C
C151
C112
R109
D103
D104
R110
PC101
C107
R112
C111
R111
C113
D105
C114
R113
R108
R305
IC301
R306
C301
R303
D101
DPC-B1 94V-0
>PF-LP<
L101
F101
C101
CN101
A1

POWER BLOCK
(HS8S2U)

A SIDE		B SIDE	
IC101	B-3	IC101	B-5
IC301	A-5	IC301	A-4
Q211	C-6	Q211	C-2
Q311	B-7	Q311	B-2
Q611	B-7	Q611	B-2
Q712	C-7	Q712	C-2
Q2008	C-3		
		D101	C-6
D101	C-2	D103	A-5
D103	B-4	D104	A-5
D104	B-3	D105	A-5
D105	A-3	D211	C-3
D211	C-6	D311	B-3
D311	B-5	D511	A-3
D511	A-5	D611	B-3
D611	B-5	D221	C-5
D221	C-5		


Power board
ER-21 BOARD
(NS330/NS333/NS430/NS433)
AF-98 board
(AUDIO/VIDEO OUT)
MS-128 board
(LOADING MOTOR)
SW-384 board
(SWITCH)
MB-108 board
(DVD/OD RF AMP, SERVO,
MOTORMDRIVE, AD DECODER,
SYSTEM CONTROL,
AUDIO ADC, PLL)

For printed wiring board

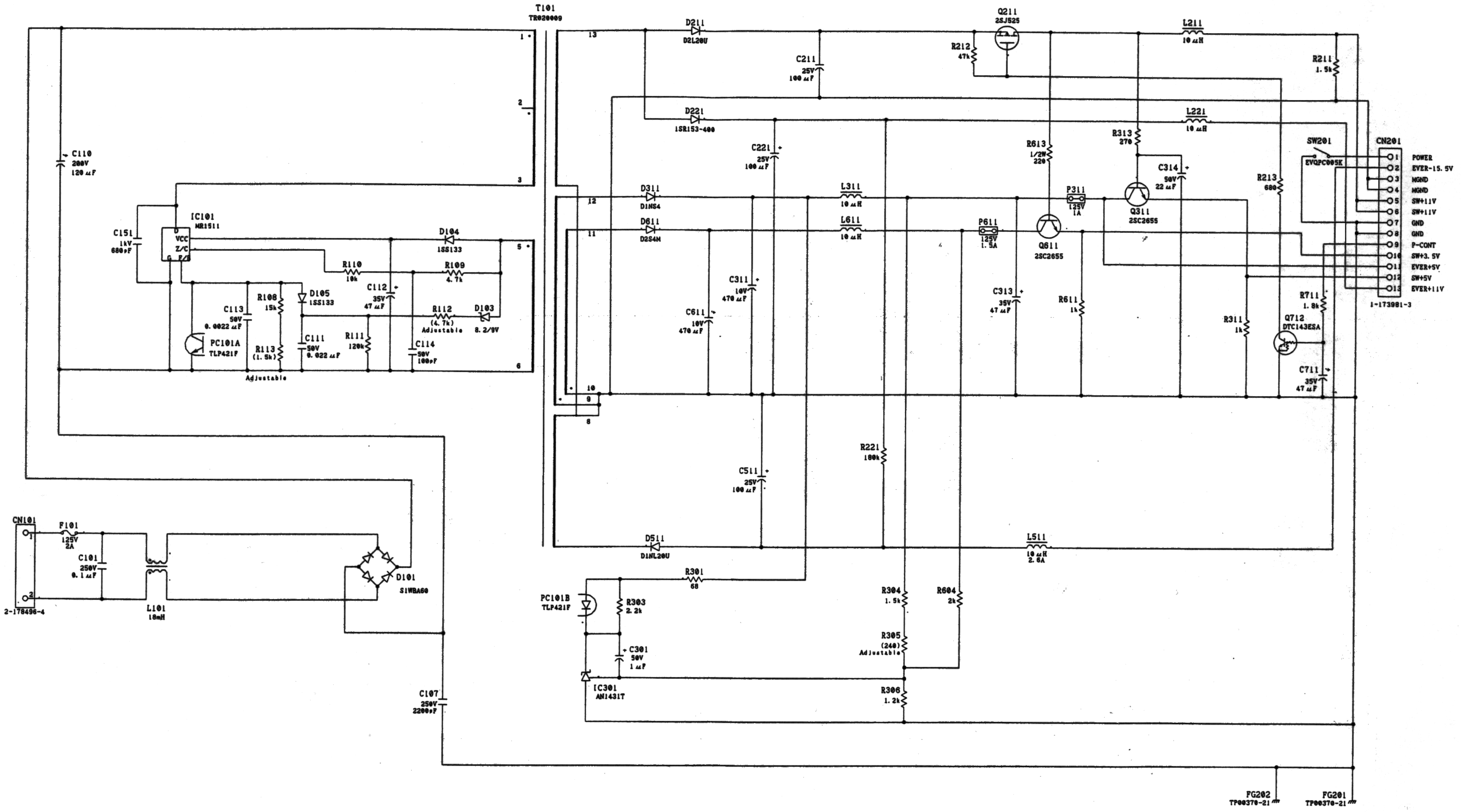
There are a few cases that the part printed on this diagram isn't mounted in this model.

For Schematic Diagram

- Refer to page 4-49 for printed wiring board of HS8S2U board.

HS8S2U BOARD
SWITCHING REGULATOR
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT

NO MARK:REC/PB MODE


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
T101
TR020009
1
2
3
5
6
13
12
11
10
9
8
C110
200V
120 μF
IC101
MR1511
D
VCC
Z/C
G
F/B
C151
1kV
680pF
D104
1SS133
R110
10k
R109
4.7k
C112
35V
47 μF
R108
15k
D105
1SS133
C113
50V
0.0022 μF
R112
(4.7k)
Adjustable
D103
8.2/9V
PC101A
TLP421F
R113
(1.5k)
Adjustable
C111
50V
0.022 μF
R111
120k
C114
50V
100pF
D211
D2L20U
C211
25V
100 μF
Q211
2SJ525
R212
47k
L211
10 μH
R211
1.5k
D221
1SR153-400
C221
25V
100 μF
L221
10 μH
R613
1/2W
220
R313
270
C314
50V
22 μF
SW201
EVQPC005K
R213
680
CN201
1 POWER
2 EVER-15.5V
3 MGND
4 MGND
5 SW+11V
6 SW+11V
7 GND
8 GND
9 P-CONT
10 SW+3.5V
11 EVER+5V
12 SW+5V
13 EVER+11V
1-173981-3
D311
D1NS4
L311
10 μH
P311
125V
1A
Q311
2SC2655
D611
D2S4M
L611
10 μH
P611
125V
1.5A
Q611
2SC2655
C311
10V
470 μF
C611
10V
470 μF
C313
35V
47 μF
R611
1k
R711
1.8k
Q712
DTC143ESA
R311
1k
C711
35V
47 μF
R221
180k
C511
25V
100 μF
D511
D1NL20U
L511
10 μH
2.6A
CN101
1
2
2-178496-4
F101
125V
2A
C101
250V
0.1 μF
L101
18mH
D101
S1WBA60
R301
68
PC101B
TLP421F
R303
2.2k
C301
50V
1 μF
IC301
AN1431T
R304
1.5k
R604
2k
R305
(240)
Adjustable
R306
1.2k
C107
250V
2200pF
FG202
TP00370-21
FG201
TP00370-21

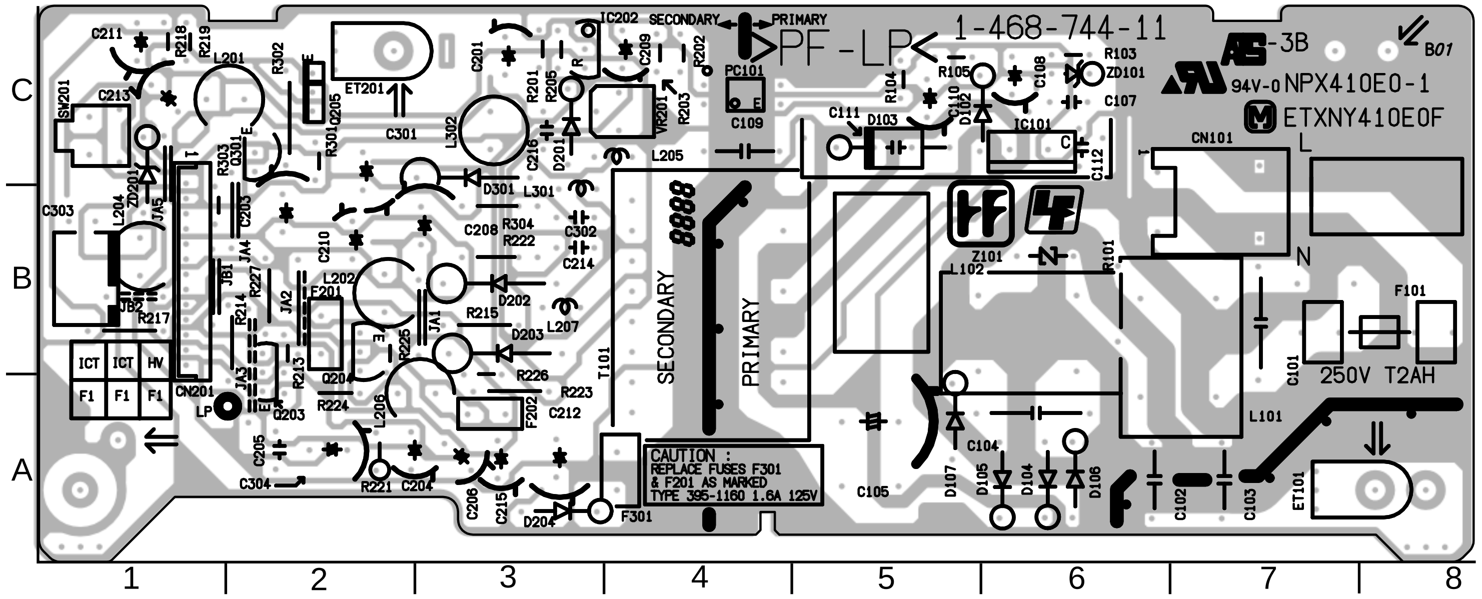
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SWITCHING REGULATOR
POWER BLOCK (HS8S2U)

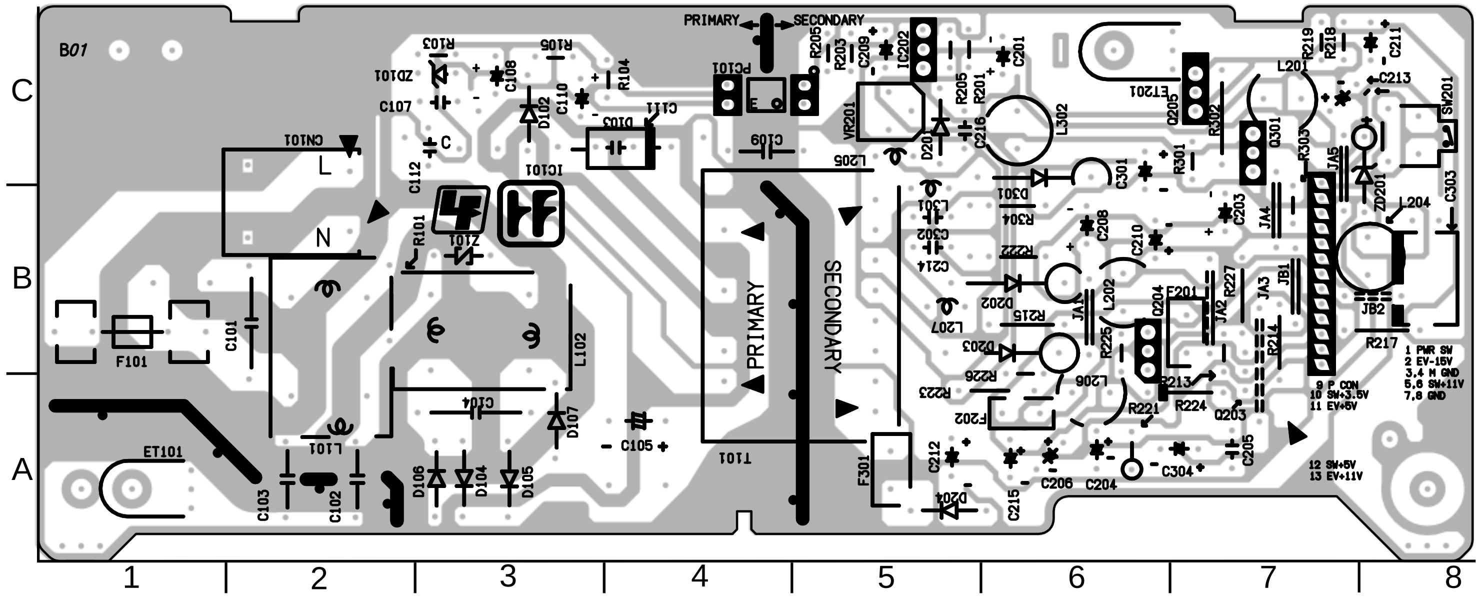
ETXNY410E0F (SWITCHING REGULATOR) PRINTED WIRING BOARD

- LF : Uses unleaded solder.

POWER BOARD (SW REG) SIDE A (ETXNY410E0F) (NS330/NS333/NS430/NS433)

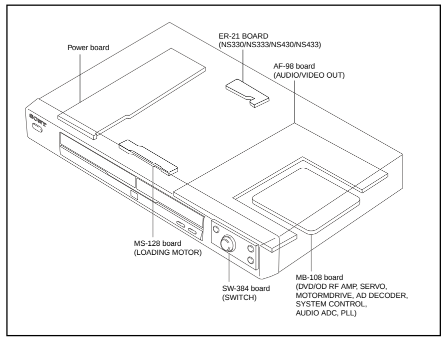

C
B
A
1
2
3
4
5
6
7
8
IC202
SECONDARY
PRIMARY
PF-LP
1-468-744-11
B01
94V-0 NPX410E0-1
ETXNY410E0F
-3B
CN101
L
N
F101
250V T2AH
SECONDARY
PRIMARY
8888
T101
CAUTION :
REPLACE FUSES F301
& F201 AS MARKED
TYPE 395-1160 1.6A 125V
SW201
C211
C213
C303
JB2
R217
ICT
ICT
HV
F1
F1
F1
CN201
LP
ET201
C301
L302
D301
L301
R304
R222
C302
C214
D202
D203
L207
R226
R223
C212
F202
D204
F301
PC101
C109
L205
C111
D103
R105
D102
C110
C108
R103
ZD101
C107
IC101
C112
Z101
L102
R101
C101
L101
C104
C105
D107
D105
D104
D106
C102
C103
ET101
C205
C304
R221
C204
C206
C215
Q203
Q204
R224
L206
R213
JA2
JA1
JA3
JA4
JA5
JB1
L204
ZD201
R218
R219
L201
R302
Q205
R303
Q301
C203
C210
L202
F201
R214
R227
R225
R215
C208
C201
R201
R205
D201
C216
VR201
R203
R202
C209
R104

POWER BOARD (SW REG) SIDE B (ETXNY410E0F) (NS330/NS333/NS430/NS433)


C
B
A
1
2
3
4
5
6
7
8
B01
PRIMARY
SECONDARY
PRIMARY
SECONDARY
L
N
F101
C101
ET101
C103
C102
D106
D104
D105
D107
C105
L102
R101
C112
C107
C108
C110
R104
D102
IC202
C209
R205
R203
R201
C201
L302
C301
R301
Q205
Q301
R303
L201
R219
R218
C211
C213
SW201
C303
ZD201
JA5
L204
JB2
R217
JB1
JA3
JA4
C203
R214
R227
JA2
F201
C204
L202
C210
C208
R225
JA1
R221
R224
R213
Q203
C304
C205
C206
C204
C215
D204
C212
F301
1 PWR SW
2 EV-15V
3.4 M GND
5.6 SW+11V
7.8 GND
9 P CON
10 SW+3.5V
11 EV+6V
12 SW+5V
13 EV+11V

POWER BLOCK (ETXNY410E0F)

A SIDE		B SIDE	
IC101	C-6	IC101	C-3
IC202	C-4	IC202	C-5
Q203	A-2	Q203	A-7
Q204	A-2	Q204	B-6
Q205	C-2	Q205	C-6
Q301	C-2	Q301	C-7
D102	C-5	D102	C-3
D103	C-5	D103	C-4
D104	A-6	D104	A-4
D105	A-6	D105	A-3
D106	A-6	D106	A-3
D107	A-5	D107	A-3
D201	C-3	D201	C-5
D202	B-3	D202	B-6
D203	B-3	D203	B-5
D204	A-3	D204	A-5
D301	B-3	D301	B-6

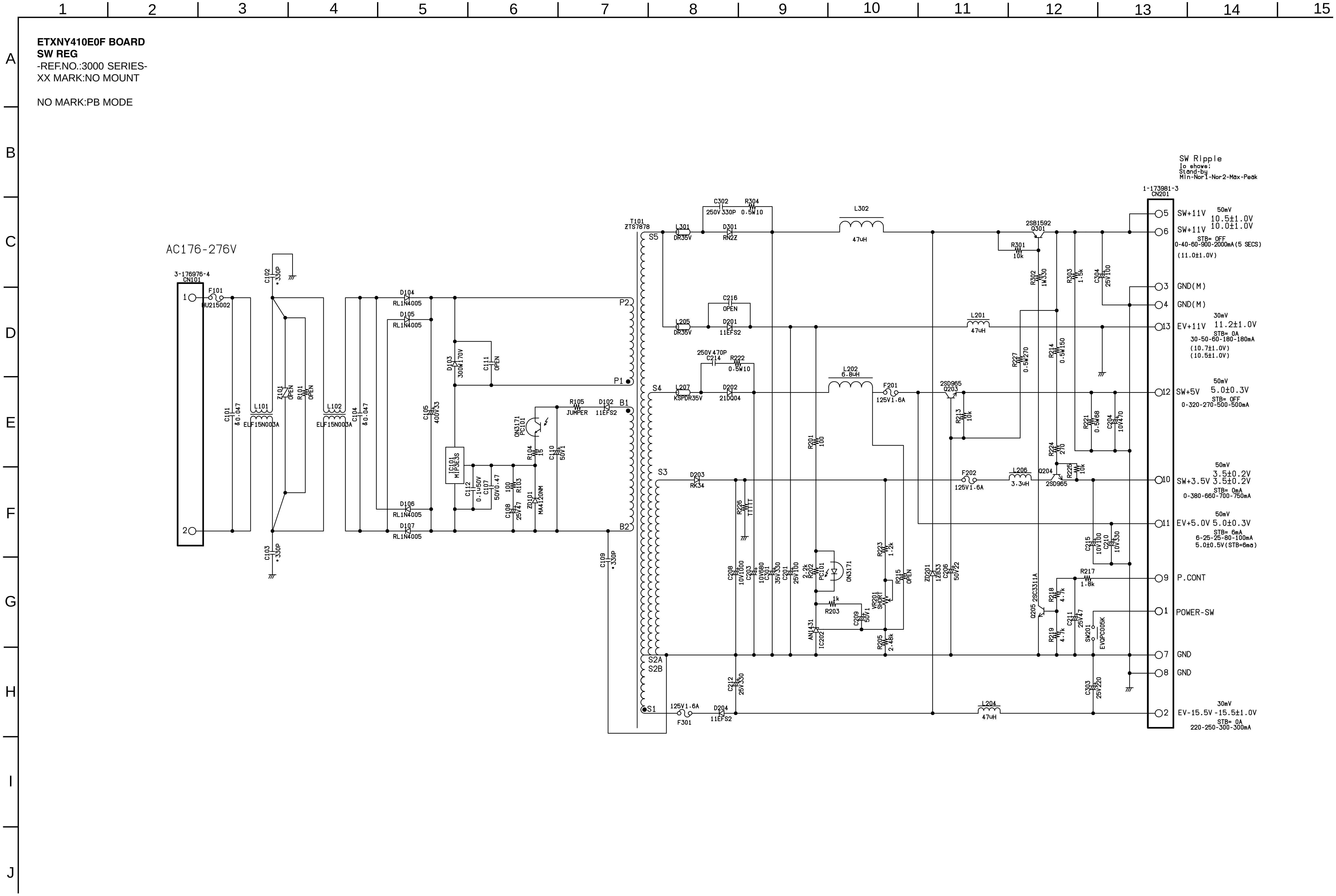

Power board
ER-21 BOARD
(NS330/NS333/NS430/NS433)
AF-98 board
(AUDIO/VIDEO OUT)
MS-128 board
(LOADING MOTOR)
SW-384 board
(SWITCH)
MB-108 board
(DVD/OD RF AMP, SERVO,
MOTORMDRIVE, AD DECODER,
SYSTEM CONTROL,
AUDIO ADC, PLL)

For printed wiring board

There are a few cases that the part printed on this diagram isn't mounted in this model.

For Schematic Diagram

- Refer to page 4-53 for printed wiring board of ETXNY410E0F board.



ETXNY410E0F BOARD
SW REG
-REF.NO.:3000 SERIES-
XX MARK:NO MOUNT

NO MARK:PB MODE

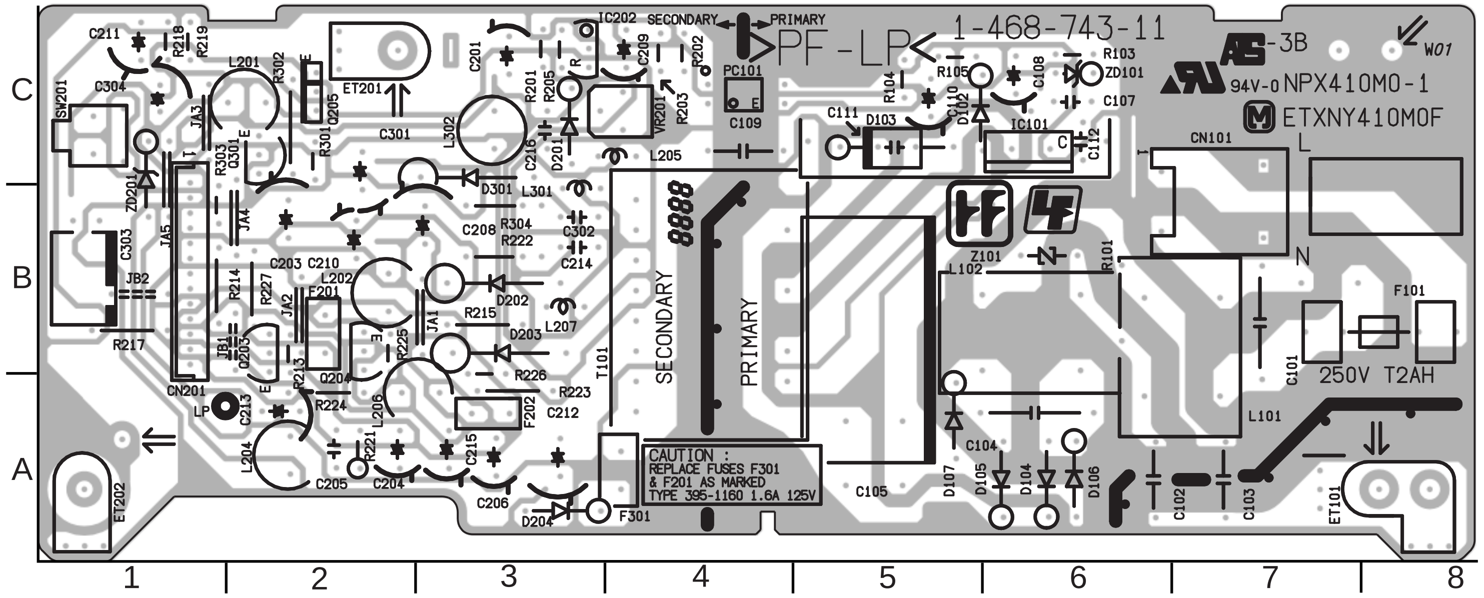
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
AC176-276V
3-176976-4
CN101
F101
HU215002
C101
&0.047
L101
ELF15N003A
C102
•330P
C103
•330P
Z101
OPEN
R101
OPEN
L102
ELF15N003A
C104
&0.047
D104
RL1N4005
D105
RL1N4005
D106
RL1N4005
D107
RL1N4005
C105
400V33
D103
300W170V
C111
OPEN
IC101
MIP3E3S
C112
0.1u50V
C107
50V0.47
R103
100
C108
25V47
ZD101
MA4120NM
PC101
ON3171
R104
15
C110
50V1
R105
JUMPER
D102
11EFS2
C109
•330P
P2
P1
B1
B2
T101
ZTS7878
S5
S4
S3
S2A
S2B
S1
L301
DR35V
D301
RN2Z
C302
250V 330P
R304
0.5W10
L302
47uH
L205
DR35V
C216
OPEN
D201
11EFS2
L201
47uH
L207
KSPDR35V
C214
250V 470P
R222
0.5W10
D202
21DQ04
L202
6.8uH
F201
125V1.6A
D203
RK34
R226
TTTTT
C208
10V1000
C203
10V680
C301
35V330
C201
25V100
R201
100
R202
2.2k
PC101
ON3171
R203
1k
C209
50V1
IC202
AN1431
R223
1.2k
VR201
SHORT
R215
OPEN
R205
2.48k
ZD201
1ZB33
C206
50V22
C212
25V330
F301
125V1.6A
D204
11EFS2
L204
47uH
Q301
2SB1592
R301
10k
R302
1W330
R303
1.5k
C304
25V100
R227
0.5W270
R214
0.5W150
Q203
2SD965
R213
10k
R221
0.5W68
C204
10V470
R224
270
Q204
2SD965
R225
10k
F202
125V1.6A
L206
3.3uH
C215
10V100
C210
10V330
R217
1.8k
R218
4.7k
Q205
2SC3311A
R219
4.7k
C211
25V47
SW201
EVQPC005K
C303
25V220
SW Ripple
Io shows;
Stand-by
Min-Nor1-Nor2-Max-Peak
1-173981-3
CN201
5 SW+11V
6 SW+11V
50mV
10.5±1.0V
10.0±1.0V
STB= OFF
0-40-60-900-2000mA(5 SECS)
(11.0±1.0V)
3 GND(M)
4 GND(M)
13 EV+11V
30mV
11.2±1.0V
STB= 0A
30-50-60-180-180mA
(10.7±1.0V)
(10.5±1.0V)
12 SW+5V
50mV
5.0±0.3V
STB= OFF
0-320-270-500-500mA
10 SW+3.5V
50mV
3.5±0.2V
3.5±0.2V
STB= 0mA
0-380-660-700-750mA
11 EV+5.0V
50mV
5.0±0.3V
STB= 6mA
6-25-25-80-100mA
5.0±0.5V(STB=6ma)
9 P.CONT
1 POWER-SW
7 GND
8 GND
2 EV-15.5V
30mV
-15.5±1.0V
STB= 0A
220-250-300-300mA

SW REG
POWER BLOCK (ETXNY410E0F)

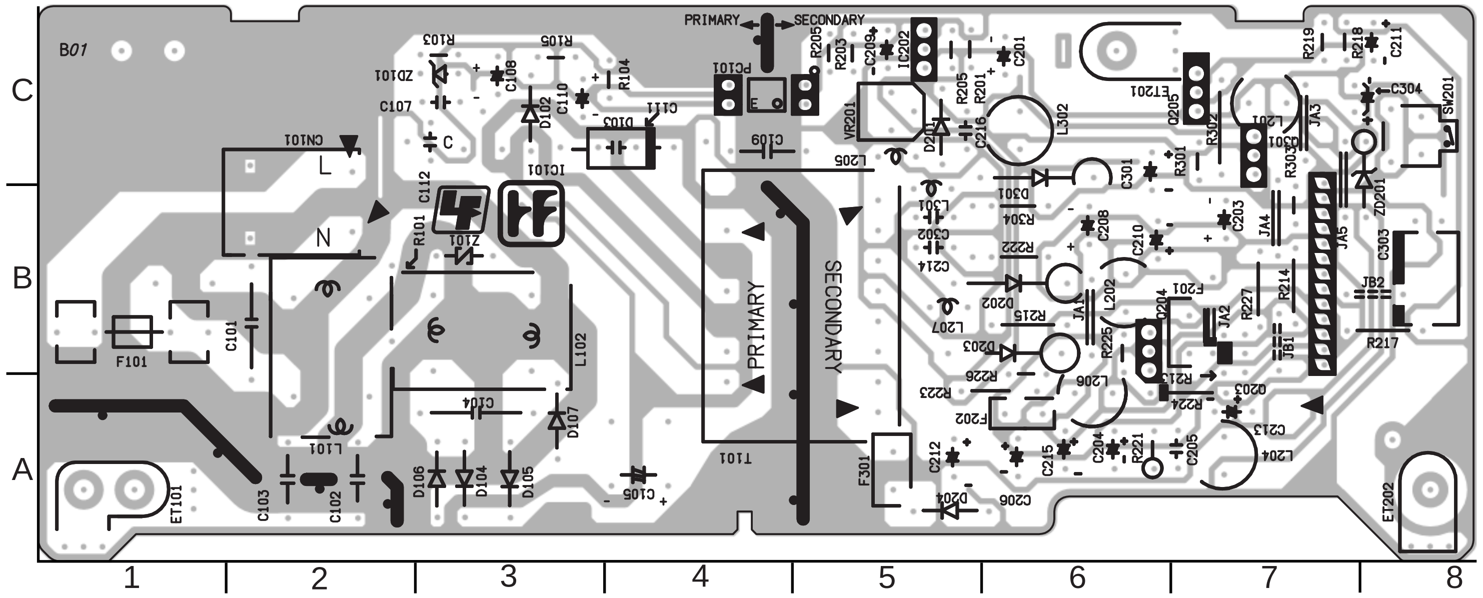
ETXNY410M0F (SWITCHING REGULATOR) PRINTED WIRING BOARD

- LF : Uses unleaded solder.

POWER BOARD (SW REG) SIDE A
(ETXNY410M0F) (NS325: PX,E,BR,AR/NS530/NS725P:PX/NS730P:HK,SP,KR,ME,AUS)

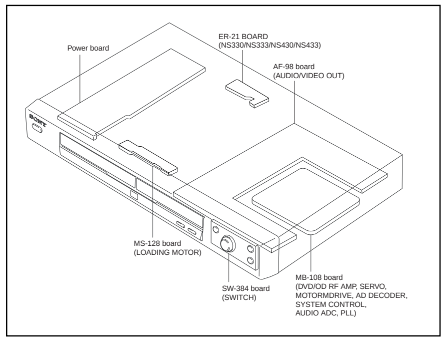

C
B
A
1
2
3
4
5
6
7
8
IC202
SECONDARY
PRIMARY
PF-LP
1-468-743-11
-3B
W01
94V-0 NPX410M0-1
ETXNY410M0F
CN101
L
N
F101
250V T2AH
L101
ET101
ET202
SW201
CN201
PC101
T101
L102
Z101
IC101
CAUTION :
REPLACE FUSES F301
& F201 AS MARKED
TYPE 395-1160 1.6A 125V
F301
F202
F201
8888

POWER BOARD (SW REG) SIDE B
(ETXNY410M0F) (NS325: PX,E,BR,AR/NS530/NS725P:PX/NS730P:HK,SP,KR,ME,AUS)


C
B
A
1
2
3
4
5
6
7
8
B01
PRIMARY
SECONDARY
IC202
CN101
L
N
F101
ET101
ET202
ET201
SW201
T101
L102
F301
F202
F201

POWER BLOCK
(ETXNY410M0F)

A SIDE		**B SIDE**	
IC101	C-6	IC101	C-3
IC202	C-4	IC202	C-5
Q203	B-2	Q203	A-7
Q204	A-2	Q204	B-6
Q205	C-2	Q205	C-7
Q301	C-2	Q301	C-7
D102	C-5	D102	C-3
D103	C-5	D103	C-4
D104	A-6	D104	A-3
D105	A-6	D105	A-3
D106	A-6	D106	A-3
D107	A-5	D107	A-3
D201	C-3	D201	C-5
D202	B-3	D202	B-6
D203	B-3	D203	B-5
D204	A-3	D204	A-5
D301	B-2	D301	B-6

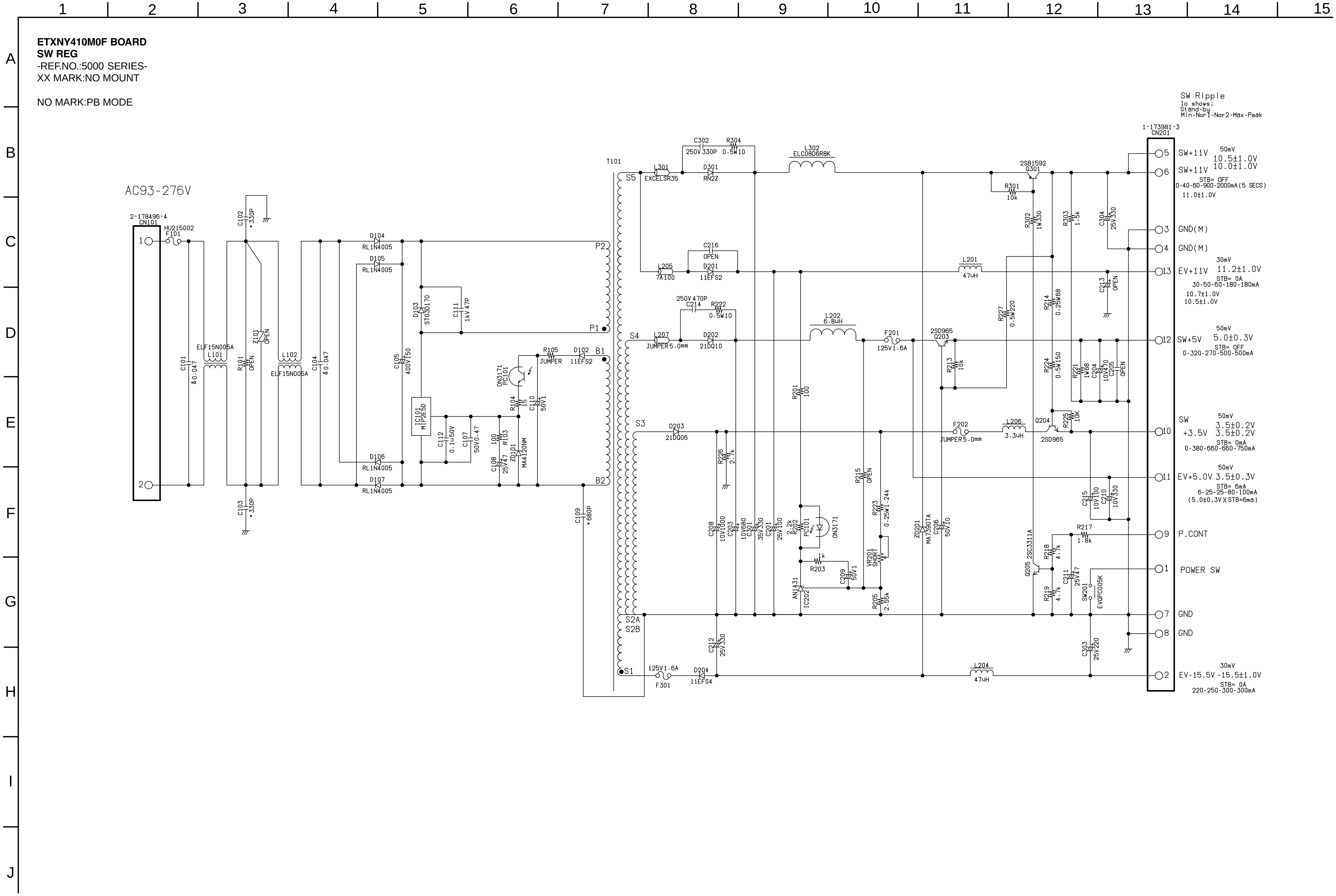

Power board
ER-21 BOARD
(NS330/NS333/NS430/NS433)
AF-98 board
(AUDIO/VIDEO OUT)
MS-128 board
(LOADING MOTOR)
SW-384 board
(SWITCH)
MB-108 board
(DVD/OD RF AMP, SERVO,
MOTORMDRIVE, AD DECODER,
SYSTEM CONTROL,
AUDIO ADC, PLL)

For printed wiring board

There are a few cases that the part printed on this diagram isn't mounted in this model.

For Schematic Diagram

- Refer to page 4-57 for printed wiring board of ETXNY410M0F board.



ETXNY410M0F BOARD
SW REG
-REF.NO.:5000 SERIES-
XX MARK:NO MOUNT

NO MARK:PB MODE

1
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12
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14
15
A
B
C
D
E
F
G
H
I
J
AC93-276V
2-178496-4
CN101
HU215002
F101
C102
330P
C103
330P
C101
&0.047
ELF15N005A
L101
R101
OPEN
Z101
OPEN
L102
ELF15N005A
C104
&0.047
D104
RL1N4005
D105
RL1N4005
D106
RL1N4005
D107
RL1N4005
D103
STQ3D170
C111
1kV47P
C105
400V150
IC101
MIP2E5D
C112
0.1u50V
C107
50V0.47
C108
25V47
R103
100
R104
15
ZD101
MA4120NM
C110
50V1
ON3171
PC101
R105
JUMPER
D102
11EFS2
T101
P2
P1
B1
B2
S5
S4
S3
S2A
S2B
S1
C109
680P
C302
250V330P
R304
0.5W10
D301
RN2Z
L301
EXCELSR35
L302
ELC08D6R8K
C216
OPEN
L205
7A100
D201
11EFS2
250V470P
C214
R222
0.5W10
L207
JUMPER5.0mm
D202
21DQ10
L202
6.8uH
F201
125V1.6A
D203
21DQ06
R226
2.7k
C208
10V1000
C203
10V680
C301
35V330
C201
25V100
R201
100
R202
2.2k
PC101
ON3171
R215
OPEN
R223
0.25W1.24k
VR201
SHORT
R203
1k
C209
50V1
IC202
AN1431
R205
2.55k
ZD201
MA7390TA
C206
50V10
C212
25V330
F301
125V1.6A
D204
11EFS4
L204
47uH
L201
47uH
2SB1592
Q301
R301
10k
R302
1W330
R303
1.5k
C304
25V330
C213
OPEN
R227
0.5W220
R214
0.25W68
2SD965
Q203
R213
10k
R224
0.5W150
R221
1W68
C204
10V470
C205
OPEN
F202
JUMPER5.0mm
L206
3.3uH
Q204
2SD965
R225
10k
C215
10V100
C210
10V330
R217
1.8k
Q205
2SC3311A
R218
4.7k
R219
4.7k
C211
25V47
SW201
EVQPC005K
C303
25V220
1-173981-3
CN201
SW Ripple
Io shows;
Stand-by
Min-Nor1-Nor2-Max-Peak
5 SW+11V 50mV 10.5±1.0V
6 SW+11V 10.0±1.0V
STB= OFF
0-40-60-900-2000mA(5 SECS)
11.0±1.0V
3 GND(M)
4 GND(M)
13 EV+11V 30mV 11.2±1.0V
STB= 0A
30-50-60-180-180mA
10.7±1.0V
10.5±1.0V
12 SW+5V 50mV 5.0±0.3V
STB= OFF
0-320-270-500-500mA
10 SW +3.5V 50mV 3.5±0.2V 3.5±0.2V
STB= 0mA
0-380-660-660-750mA
11 EV+5.0V 50mV 3.5±0.3V
STB= 6mA
6-25-25-80-100mA
(5.0±0.3V)(STB=6ma)
9 P.CONT
1 POWER SW
7 GND
8 GND
2 EV-15.5V 30mV -15.5±1.0V
STB= 0A
220-250-300-300mA

SW REG
POWER BLOCK (ETXNY410M0F)

SECTION 5
IC PIN FUNCTION DESCRIPTION

5-1. SYSTEM CONTROL PIN FUNCTION (MB-108 BOARD IC104: MB91307RPFV-G-BND-E1)

Pin No.	Pin name	I/O	Function
1-5	HA17-HA21	O	Address bus A17-A21
6	HA22	-	Not used
7	WP	O	I2C EEPROM write protect output
8	XSACS	-	Not used
9	AVCC	-	Power supply (+3.3 V)
10	AVRH	-	Reference power supply (+3.3 V)
11	AVSS	-	Ground
12	AN0	I	Set of mode 0
13	AN1	I	Set of mode 1
14	AN2	I	Set of mode 2
15	AN3	I	S101 interrupt
16	INT0	I	AV DEC Interrupt input
17	INT1	I	ARP Interrupt input
18	INT2	I	SDSP Interrupt input
19	INT3	-	Not used
20	INT4	I	IF CON Interrupt input
21	INT5	-	Not used
22	INT6	-	Not used
23	INT7	-	Not used
24	VCC	-	Power supply (+3.3 V)
25	SI0	I	Serial bus 0 (data input)
26	SO0	O	Serial bus 0 (data output)
27	SC0	O	Serial bus 0 (clock output)
28	SI1	-	Not used
29	SO1	O	Serial bus 1 (data output)
30	SC1	O	Serial bus 1 (clock output)
31	SI2	I	Serial bus 2 (data input)
32	SO2	O	Serial bus 2 (data output)
33	DSENS	-	Not used
34	VSS	-	Ground
35	XRST	O	System reset signal output
36	XARPRST	O	WIDE Select signal output
37	RGBSEL	-	Not used
38	SDA	I/O	I2C data input/output
39	SCL	O	I2C clock output
40	TRM+	-	Not used
41	EUROV	-	Euro Video Signal
42	EXT/DSEL	O	I/P select signal output
43	MD0	I	Input of mode select 0 (fixed at “ H”)
44	MD1	I	Input of mode select 1 (fixed at “ L”)
45	MD2	I	Input of mode select 2 (fixed at “ L”)
46	DREQ0	I	AV DEC DMA-REQ 0 input
47	DACK0	O	AV DEC DMA-ACK 0 output
48	XDRVMUTE	O	Drive mute signal output
49	DREQ1	I	AV DEC DMA-REQ 1 input
50	DACK1	O	AV DEC DMA-ACK 1 output
51	XIFCS	O	IF CON Chip select signal output
52	VSS	-	Ground
53	X1	O	Clock output (16.5 MHz)
54	X2	I	Clock input (16.5 MHz)

Pin No.	Pin name	I/O	Function
55	VCC	-	Power supply (+3.3 V)
56	CKSW1	-	Not used
57	OCSW1	-	Not used
58	CS0X	O	External ROM chip select signal output
59	CS1X	O	Extranal RAM chip select signal output
60	CS2X	O	AV DEC Chip select signal output
61	CS3X	O	AV DEC Chip select signal output
62	CS4X	O	ARP Chip select signal output
63	CS5X	O	SDSP Chip select signal output
64	VCCI	-	Power supply (+1.8 V)
65	CS6X	-	Not used
66	CS7X	-	Not used
67	XWAIT	I	Wait signal input
68	BGRNTX	I	Test terminal (fixed at “H”)
69	BRQ	I	Test terminal (fixed at “L”)
70	XRD	O	Read enable signal output
71	XWRH	O	High byte write enable signal output (16 bit and 8 bit)
72	XWRL	O	Lower order (progre only)
73	NMIX	I	Not used (fixed at “H”)
74	VCCI	-	Power supply (+1.8 V)
75	VSS	-	Ground
76	XFRRST	I	IF CON Reset signal input
77	CPUCK	O	CPU clock signal output
78	OCSW2	-	Not used
79	XDACS	O	DAC (2ch) chip select signal output
80	TRM–	-	Not used
81	48/44.1K	O	PLL FS control signal output
82	WIDE	O	Laser diode mute signal output
83	MA_MUTE	O	Audio mute signal output
84	SRAMWE	O	SRAM write enable (progre only)
85-92	HD0-HD7	I/O	Data bus D0-D7 (16 bit only)
93-100	HD8-HD15	I/O	Data bus D8-D15 (16 bit) , D0-D7 (8 bit)
101	VSS	-	Ground
102-109	HA0-HA7	O	Address bus A00-A07
110	VCC	-	Power supply (+3.3 V)
111-118	HA8-HA15	O	Address bus A08-A15
119	VSS	-	Ground
120	HA16	O	Address bus A16

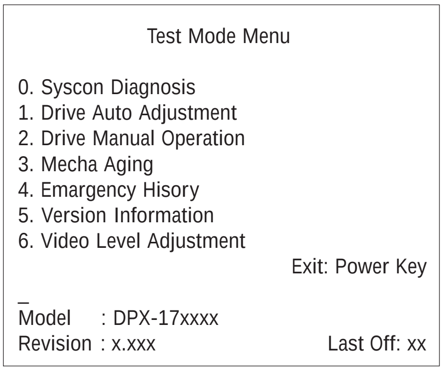
SECTION 6
TEST MODE

6-1. GENERAL DESCRIPTION

The Test Mode allows you to make diagnosis and adjustment easily using the remote commander and monitor TV. The instructions, diagnostic results, etc. are given on the on-screen display (OSD).

6-2. STARTING TEST MODE

Press the [TOP MENU], [CLEAR], [POWER] keys on the remote commander in this order with the power of main unit in OFF status, and the Test Mode starts, then “DIAG START” will be displayed on the fluorescent display tube and the menu shown below will be displayed on the TV screen. At the bottom of menu screen, the model name and revision number are displayed. Last Off at the lower right of screen indicates the information code concerning the last power off. To execute each function, select the desired menu and press its number on the remote commander. To exit from the Test Mode, press the [I/⏻] key.



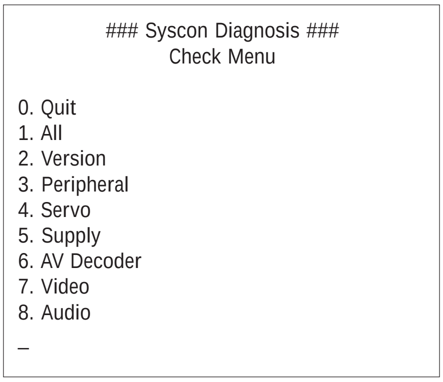
```
                 Test Mode Menu

0. Syscon Diagnosis
1. Drive Auto Adjustment
2. Drive Manual Operation
3. Mecha Aging
4. Emargency Hisory
5. Version Information
6. Video Level Adjustment
                                 Exit: Power Key
_
Model    : DPX-17xxxx
Revision : x.xxx                    Last Off: xx
```

Power Off Information Code List

00 :	Primary Power Off
01 :	Power Off Request from SYSTEM CONTROL
02 :	Power Off by Emergency Power Off Command from SYSTEM CONTROL (if information is sent from SYSTEM CONTROL)
03 :	IF CON Judged that SYSTEM CONTROL is Faulty
04 :	Power Off from Diagnosis Mode of IF CON
05 :	Forced Power Off by the User
06 :	Power Off by Power Supply Voltage Monitor

6-3. SYSCON DIAGNOSIS

The same contents as board detail check by serial interface can be checked from the remote commander. On the Test Mode Menu screen, press [0] key on the remote commander, and the following check menu will be displayed.



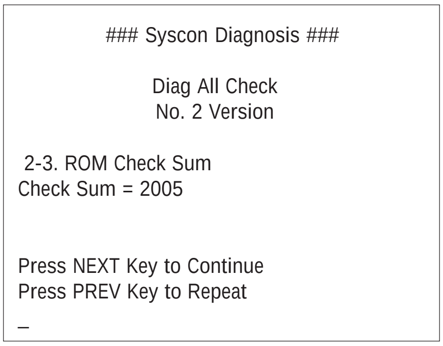
```
            ### Syscon Diagnosis ###
                   Check Menu

0. Quit
1. All
2. Version
3. Peripheral
4. Servo
5. Supply
6. AV Decoder
7. Video
8. Audio
_
```

0. Quit

Quit the Syscon Diagnosis and return to the Test Mode Menu.

1. (All items continuous check)

This menu checks all diagnostic items continuously. Normally, all items are checked successively one after another automatically unless an error is found, but at a certain item that requires judgment through a visual check to the result, the following screen is displayed for the key entry.



```
            ### Syscon Diagnosis ###

                 Diag All Check
                 No. 2 Version

 2-3. ROM Check Sum
Check Sum = 2005


Press NEXT Key to Continue
Press PREV Key to Repeat
_
```

For the ROM Check, the check sum calculated by the Syscon is output, and therefore you must compare it with the specified value for confirmation.
Following the message, press [⏭] key to go to the next item, or [⏮] key to repeat the same check again.

To quit the diagnosis and return to the Check Menu screen, press ■ or ENTER key. If an error occurred, the diagnosis is suspended and the error code is displayed as shown below.

```
          ### Syscon Diagnosis ###

 3-3. EEPROM Check
Error 03: EEPROM Write/Read N
Address        : 00000001
Write Data     : 2492
Read Data      : 2490
Press NEXT Key to Continue
Press PREV Key to Repeat
_
```

Press ■ key to quit the diagnosis, or ⏮ key to repeat the same item where an error occurred, or ⏭ key to continue the check from the item next to faulty item.

*In "All item continuous check", pressing step or enter will not quit the diagrosis.

Selecting 2 and subsequent items calls the submenu screen of each item. When "———" is displayed in the submenu, it means that the test is not supported in the model.

For example, if "5. Supply" is selected, the following submenu will be displayed.

```
          ### Syscon Diagnosis ###
                 Check Menu
                No. 5 Supply

0. Quit
1. All
2. ARP Register Check
3. ARP to RAM Data Bus
4. ARP to RAM Address Bus
5. ARP RAM Check
_
```

0. Quit

Quit the submenu and return to the main menu.

1. (All submenu items continuous check.)

This menu checks 2 and subsequent items successively. At the item where visual check is required for judgment or an error occurred, the checking is suspended and the message is output for key entry. Normally, all items are checked successively one after another automatically unless an error is found.
Selecting 2 and subsequent items executes respective menus and outputs the results.
For the contents of each submenu, see "General Description of Checking Method" and "Check Items List".

General Description of Checking Method

2. Version

(2-2) Revision
ROM revision number is displayed.
Error: Not detected.
The revision number defined in the source file is displayed with four digits.

(2-3) ROM Check Sum
Check sum is calculated.
Error: Not detected.
8-bit data are added up to the ROM address 0x000F0000 to 0x002EFFFF, and the result is displayed with 4-digit hexadecimal number. Error is not detected. Compare the result with the specified value.

(2-4) Model Type
Model code is displayed.
Error: Not detected.
The model code read from the EEPROM is displayed with 2-digit hexadecimal number.

(2-5) Region
Region code is displayed.
Error: Not detected.
The region code determined from the model code is displayed.

(2-6) M't check
Mount resistance is checked.
Error 22: The region code does not accord.
Check wether the region code that is deduced from model resistance and destination resistance accords with the region code that is deduced from region resistance value.

3. Peripheral

(3-2) EEPROM Check
Data write → read, and accord check
Error 03: EEPROM write/read discord
0x9249, 0x2942 and 0x4294 are written to the address 0x00 to 0xFF of the EEPROM and then read for checking. Before writing, the data are saved, then after checking, they are written to restore the contents of EEPROM.

(3-6) Venc Check (NS755V/NS915V)
Data write → read, and accord check
Error 52: Write and read data discord.
Accessing to the SYSCON may be defective.

(3-8) External RAM Check
Test Data write → read, and accord check
Error 02: The external RAM used in the system control is checked.

4. Servo

(4-2) Servo DSP Check
Data write → read, and accord check
Error 12: Read data discord
0x9249, 0x2942 and 0x4294 are written to the RAM address 0x602 of the Servo DSP and then read for checking.

(4-3) ——————
Check no support.

(4-4) RF Amp Register Check
Date write → read, and accord check
Error 13: RF Amp resister write, and read data discord
Implement 8-bit shift operation of the 0x01 to the readable/writable register of the RF Amp. If once write data do not accord with read data, it is NG.

5. Data Supply System

(5-2) ARP Register Check
Data write → read, and accord check
Error 08: ARP register write, and read data discord
Data 0x00 to 0xFF is written sequentially to the ARP TMAX register (address 0xC6) and then read for checking.

(5-3) ARP to RAM Data Bus
Data write → read, and accord check
Error 09: ARP ←→ RAM data bus error
Data 0x0001 to 0x8000 where one bit each is set to 1 are written to the address 0 of RAM (IC303) connected to the ARP (IC302) through the bus, then they are read and checked. In case of discord, written bit pattern and read data are displayed. If data where multiple bits are 1 are read, the bits concerned may touch each other. Further, if data where certain bit is always 1 or 0 regardless of written data, the line could be disconnected or shorted.

(5-4) ARP to RAM Address Bus
Data write → other address read discord check
Error 10: ARP ←→ RAM address bus error
Caution: Address and data display in case of an error is different from the display of other diagnosis (described later).
Before starting the test, all addresses of RAM (IC303) are cleared to 0x0000.
First, 0xA55A is written to the address 0x00000, and the address data are read and checked from addresses 0x00001 to 0x80000 while shifting 1 bit each. Next, the data at that address is cleared, and it is written to the address 0x00001, and read and checked in the same manner. This check is repeated up to the address 0x80000 while shifting the address data by 1 bit each.
If data other than 0 is read at the addresses except written address, an error is given because all addresses were already cleared to 0. In this check, the error display pattern is different from that of other diagnosis; read data, written address, and read address are displayed in this order. However, the message uses same template, and accordingly exchange Address and Data when reading.
The following display, for example,

```
          ### Syscon Diagnosis ###

 5-4. ARP to RAM Address Bus
Error 10: ARP - RAM Address B
Address         : 0000A55A
Write Data      : 00000000
Read Data       : 00080000
Press NEXT Key to Continue
Press PREV Key to Repeat

_
```

shows the data 0xA55A was read from address 0x00080000 though it was written to the address 0x00000000. This implies that these addresses are in the form of shadow. Also, if the read data is not 0xA55A, another error will be present.

(5-5) ARP RAM Check
Data write → read, and accord check
Error 11: ARP RAM read data discord
The program code data stored in ROM are copied to all areas of RAM (IC303) connected to the ARP through the bus, then they are read and checked if they accord. If the detail check was selected initially, the data are written to all areas and read, then the same test is conducted once again with the data where all bits are inverted between 1 and 0. If discord is detected, faulty address, written data, and read data are displayed following the error code 11, and the test is suspended.

6. AV Decoder

(6-2) 1935 RAM

Data write → read, and accord check

Error 14: AVD RAM read data discord

The program code data stored in ROM (IC107) are copied to all areas of RAM (IC404, IC405) connected to the AVD through the bus, then they are read and checked if they accord. Further, the same test is conducted once again with the data where all bits are inverted between 1 and 0. If discord is detected, faulty address, written data, and read data are displayed following the error code 14, and the test is suspended.

During the test, OSD display becomes blank as the OSD area is also checked.

(6-3) 1935 SP

ROM → AVD RAM → Video OUT

Error: Not detected.

The data including sub picture streams in ROM are transferred to the RAM in AVD, and output as video signals from the AVD.

Though OSD display becomes blank, the output of video signals continues until the key is pressed.

7. Video Output

(7-2) Color Bar

AVD color bar command write → Video OUT

Error: Not detected.

The command is transferred to the AVD, and the color bar signals are output from video terminals.

(7-3) Composite Out (European model only)

EURO-AV video output check

AVD color bar command write → Video (EURO-AV) OUT

Error: Not detected.

With the component of video output turned off, the color bar signals are output from the EURO-AV terminal.

This check is performed for European model only.

(7-4) Y/C Out (European model only)

Y/C video output check

AVD color bar command write → Video (Y/C) OUT

Error: Not detected.

With the Y/C of video output turned on, the color bar signals are output.

This check is performed for European model only.

(7-5) RGB Out (European model only)

RGB video output check

AVD color bar command write → Video (RGB) OUT

Error: Not detected.

With the RGB of video output turned on, the color bar signals are output.

This check is performed for European model only.

(7-6) Component Out (European model only)

Component video output check

AVD color bar command write → Video (Component) OUT

Error: Not detected.

With the component of video output turned on, the color bar signals are output.

This check is performed for European model only.

(7-7) Euro AV Through (European model only)

AV Through output On/Off

Error: Not detected.

AV Through output is turned on.

This check is performed for European model only.

8. Audio Output

(8-2) ARP → 1935

Data flow from supply system DRAM to SDRAM of AV Decoder is tested.

Error 15 : ARP → 1935 video NG
16 : ARP → 1935 audio NG

(8-3) Test Tone

Pink noise output

Error: not detected

In the models without DD output, the test tone is output from L and R of 2-channel only.

After turning on all outputs, each time the ⏭ key is pressed, the output channel is switched for individual channel checking.

Diagnosis Check Items List

2. Version

(2-2) Revision
(2-3) ROM Check Sum
(2-4) Model Type
(2-5) Region
(2-6) M’t Check

3. Peripheral

(3-2) EEPROM Check
(3-7) ——— (Function not supported)

4. Servo

(4-2) Servo DSP Check
(4-3) ——— (Function not supported)
(4-4) RF Amp Register Check

5. Data Supply System

(5-2) ARP Register Check
(5-3) ARP to RAM Data Bus
(5-4) ARP to RAM Address Bus
(5-5) ARP RAM Check

6. AV Decoder

(6-2) 1935 RAM
(6-3) 1935 SP

7. Video Output

(7-2) Color Bar
(7-3) Composite Out (European model only)
(7-4) Y/C Out (European model only)
(7-5) RGB Out (European model only)
(7-6) Component Out (European model only)
(7-7) Euro AV Through (European model only)

8. Audio Output

(8-2) ARP → 1935

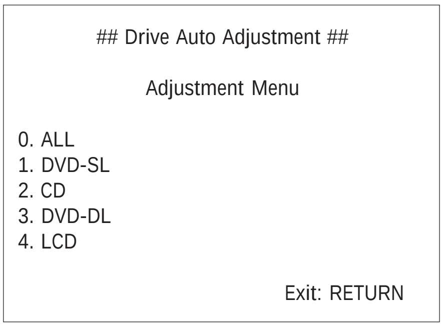
(8-3) Test Tone

Error Codes List

00: Error not detected
01: RAM write/read data discord
03: EEPROM NG
04: Flash memory clear error
05: Flash memory write error
06: Flash memory read data discord
08: ARP register read data discord
09: ARP ←→ RAM data bus error
10: ARP ←→ RAM address bus error
11: ARP RAM read data discord
12: Servo DSP NG
13: RF Amp NG
14: 1935 SDRAM NG
15: ARP → 1935 video NG
16: ARP → 1935 audio NG
1A: System call error (Function not supported)
1B: System call error (Parameter error)
1C: System call error (Illegal ID number)
20: System call error (Time out)
22: Resistor installation error
90: Error occurred
91: User verification NG
92: Diagnosis cancelled.

6-4. DRIVE AUTO ADJUSTMENT

On the Test Mode Menu screen, press $\boxed{1}$ key on the remote commander, and the drive auto adjustment menu will be displayed.



```
## Drive Auto Adjustment ##

Adjustment Menu

0. ALL
1. DVD-SL
2. CD
3. DVD-DL
4. LCD

Exit: RETURN
```

Normally, $\boxed{0}$ is selected to adjust DVD (single layer), CD and DVD (dual layer) in this order. But, individual items can be adjusted for the case where adjustment is suspended due to an error. In this mode, the adjustment can be made easily through the operation following the message displayed on the screen. Which disc is currently adjusted is displayed on the fluorescent display tube.

0. ALL

You will be asked if EEPROM data are initialized or not, and for this prompt, select $\boxed{0}$. First , the servo setting data in EEPROM, are cleared to initialize. Then, $\boxed{1}$ DVD-SL disc, $\boxed{2}$ CD disc, and $\boxed{3}$ DVD-DL disc are adjusted in this order. Each time one disc was adjusted, it is ejected, and therefore exchange the disc following the message. You can exit the adjustment by pressing the $\boxed{\blacksquare}$ button. In adjusting each disc, the mirror time is measured to check the disk type. In the auto adjustment, whether the disc type is correct is not checked unlike conventional models, and accordingly, take care not to insert a different type of disc.

1. DVD-SL (single layer)

Select 1, insert DVD single layer disc, and press ENTER key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

DVD Single Layer Disc Adjustment Steps

1. Sled Reset
2. Disc Check Memory SL
3. Set Disc Type SL
4. Spdl Start
5. LD ON
6. Focus Error Check
7. Focus ON 0 with PI Level Measure
8. Auto Track Offset Adjust L0
9. Trv Level Check
10. Tracking ON
11. CLVA ON
12. Sled ON
13. Auto Focus Balance Adjust
14. Auto Loop Filter Offset Adjust
15. Auto Focus Gain Adjust L0
16. Auto Focus Balance Adjust L0
17. EQ Boost Adjust
18. Auto Loop Filter Offset Adjust
19. Auto Track Gain Adjust
20. RF Level Measure
21. Jitter Measure
22. Eep Copy Loop Filter Offset
23. All Servo Stop

2. CD

Select 2, insert CD disc, and press ENTER key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

CD Adjustment Steps

1. Sled Reset
2. Disc Check Memory CD
3. Set Disc Type CD
4. Spdl Start
5. LD ON
6. Focus Error Check
7. Fcs ON 1 with PI Level Measure
8. Auto Track Offset Adjust L0
9. Trv Level Check
10. Tracking ON
11. CLVA ON
12. Sled ON
13. Auto focus Blance Adjust
14. Auto Loop Filter Offset Adjust
15. Auto Focus Gain Adjust L0
16. Auto Focus Balance Adjust L0
17. Eq Boost Adjust
18. Auto Loop Filter Offset Adjust
19. Auto Track Gain Adjust
20. Copy Adjustment Data to LCD
21. RF Level Measure
22. Jitter Measure
23. All Servo Stop

3. DVD Dual Layer Disc

Select 3, insert DVD dual layer disc, and press ENTER key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

DVD Dual Layer Disc Adjustment Steps

1. Sled Reset
2. Disc Check Memory DL
3. Set Disc Type DL

DVD DL Layer 1 Adjust

4. Spdl Start
5. LD ON
6. Fcs ON 1 with PI Level Measure
7. Auto Track Offset Adjust L1
8. Tracking ON
9. Clva ON
10. Sled ON
11. Auto Focus Balance Adjust
12. Auto Focus Gain Adjust L1
13. Auto Focus Balance Adjust L1
14. Eq Boost Adjust L1
15. Auto Track Gain Adjust L1
16. Jitter Measure

DVD DL Layer 0 Adjust

17. Focus Jump (L1 → L0)
18. Auto Track Offset Adjust L0
19. Tracking ON
20. Clva ON
21. Sled ON
22. Auto Focus Balance Adjust
23. Auto Focus Gain Adjust L0
24. Auto Focus Balance Adjust L0
25. Eq Boost Adjust L0
26. Auto Track Gain Adjust L0
27. Jitter Measure
28. All Servo Stop

4. LCD

LCD disc is not adjusted because the adjusted data of CD are reflected, and SACD (hybrid disc) is not adjusted because the adjusted data of CD and DVD-DL are reflected.

6-5. DRIVE MANUAL OPERATION

On the Test Mode Menu screen, select 2, and the manual operation menu will be displayed. For the manual operation, each servo on/off control and adjustment can be executed manually.

```
           ## Drive Manual Operation ##

                 Operation Menu

1. Disc type
2. Servo Control
3. Track/Layer Jump
4. Manual Adjustment
5. Auto Adjustment
6. Memory Check

0. Disc Check Memory

                              Exit: RETURN
```

In using the manual operation menu, take care of the following points. These commands do not provide protection, thus requiring correct operation. The sector address or time code field is displayed when a disc is loaded.

1. Set correctly the disc type to be used on the Disc Type screen.
   The Disc Type must be performed after a disc was loaded.
   The set Disc Type is cleared when the tray is opened.
2. After power ON, if the Manual Operation was selected, first perform "Reset SLED TILT" by opening 1. Disc Type screen.
3. In case of an alarm, immediately press the ■ button to stop the servo operation, and turn the power OFF.

Basic operation (controllable from front panel or remote commander)

I/⏻ : Power OFF
■ : Servo stop
⏏ (Open/Close) : Stop+Eject/Loading
↶ RETURN : Return to Operation Menu or Test Mode Menu
▶▶I , I◀◀ : Transition between sub modes of menu
1 to 9, 0 : Selection of menu and items
Cursor ↑/↓ : Increase/Decrease in manually adjusted value

0. Disc Check Memory

```
                 Disc Check

1. SL Disc Check
2. CD Disc Check
3. DL Disc Check

0. Reset SLED TILT
```

On this screen, the mirror time is measured and written to the EEPROM to check the disc type. First, set a DVD SL disc and press 1, then set a CD disc and press 2, and finally set a DVD DL disc and press 3. The measured mirror time is displayed respectively.
The adjustment must be executed more than once after default data were written.
From this screen, you can go to another mode by pressing ▶▶I or I◀◀ key, but you cannot enter this mode from another mode. You can enter this mode from the Operation Menu screen only.

1. Disc Type

```
                 Disc Type
1. Disc Type Auto Check
2. DVD SL        12cm
3. DVD DL        12cm
4. CD            12cm
5. SACD          12cm
6. DVD SL        8cm
7. DVD DL        8cm
8. CD            8cm
9. LCD           8cm
0. Reset SLED TILT
   SA. ------ SI. --                  EMG. 00
                                    Jitter 00
```

On this screen, select the disc type. To select the disc type, press the number of the loaded disc. The selected disc type is displayed at the bottom. Selecting 2 automatically selects and displays the disc type. In case of wrong display, retry "Disc Check Memory". Also, opening the tray causes the set disc type to be cleared. In this case, set the disc type again after loading. In performing manual operation, the disc type must be set.

Once the disc type has been selected, the sector address or time code display field will appear as shown below. These values are displayed when PLL is locked.

```
                    Disc Type
1. Disc Type Auto Check
2. DVD SL             12cm
3. DVD DL             12cm
4. CD                 12cm
5. SACD               12cm
6. DVD SL              8cm
7. DVD DL              8cm
8. CD                  8cm
9. LCD                 8cm
0. Reset SLED TILT
   SA.------ SI.--                EMG.00
DVD SL 12cm                       Jitter FF
```

Display when DVD SL 12cm disc was selected

```
                    Disc Type
1. Disc Type Auto Check
2. DVD SL             12cm
3. DVD DL             12cm
4. CD                 12cm
5. SACD               12cm
6. DVD SL              8cm
7. DVD DL              8cm
8. CD                  8cm
9. LCD                 8cm
0. Reset SLED TILT
                          TC. --:--:-- EMG.00
CD                    12cm           Jitter FF
```

Display when CD 12cm disc was selected

0 Reset SLED TILT	Reset the Sled and Tilt to initial position. (Reset the Sled only to initial position because the Tilt mechanism is not available in this model.)
1 Disc Type Check	Judge automatically the loaded disc. As the judged result is displayed at the bottom of screen, make sure that it is correct. If Disc Check Memory menu has not been executed after EEPROM default setting, the disc type cannot be judged. In this case, return to the initial menu and make a check for three types of discs (SL, DL, CD).
2 to 9	Select the loaded disc. The adjusted value is written to the address of selected disc. No further entry is necessary if 1 was selected.

2. Servo Control

```
                   Servo Control
1. LD              Off R. Sled FWD
2. SP              Off L. Sled REV
3. Focus           Off
4. TRK.            Off
5. Sled            Off
6. CLVA            Off
7. FCS. Srch       Off


0. Reset SLED TILT
                        SA.------ SI.-- EMG. 00
DVD SL 12 cm                          Jitter FF
```

On this screen, the servo on/off control necessary for replay is executed. Normally, turn on each servo from 1 sequentially and when CLVA is turned on, the usual trace mode becomes active. In the trace mode, DVD sector address or CD time code is displayed. This is not displayed where the spindle is not locked. The spindle could run overriding the control if the spindle system is faulty or RF is not present. In such a case, do not operate CLVA.

0 Reset SLED TILT:	Reset the Sled and Tilt to initial position. (Reset the Sled only to initial position because the Tilt mechanism is not available in this model.)
1 LD:	Turn ON/OFF the laser.
2 SP:	Turn ON/OFF the spindle.
3 Focus:	Search the focus and turn on the focus.
4 TRK:	Turn ON/OFF the tracking servo.
5 Sled:	Turn ON/OFF the sled servo. When PLL is not locked (cannot be locked), the sled servo is not turned ON. The display keeps ON.)
6 CLVA:	Turn ON/OFF normal servo of spindle servo.
7 FCS. Srch:	Apply same voltage as that of focus search to the focus drive to check the focus drive system.
⇥ Sled FWD:	Move the sled outward. Perform this operation with the tracking servo turned off.
⇤ Sled REV:	Move the sled inward. Perform this operation with the tracking servo turned off.

3. Track/Layer Jump

```
             Tracking/Layer Jump
1. 1Tj FWD                R. Fj (L1 –> L0)
2. 1Tj REV                L. Fj (L0 –> L1)
3. 2Tj FWD                U. Lj (L1 –> L0)
4. 2Tj REV                D. Lj (L0 –> L1)
5. NTj FWD
6. NTj REV
7. 500Tj FWD
8. 500Tj REV
9. 10k/20k FWD
0. 10k/20k REV
                     SA.------ SI.-- EMG. 00
DVD SL 12 cm                       Jitter FF
```

On this screen, track jump, etc. can be performed. Only for the DVD-DL, the focus jump and layer jump are displayed in the right field.

1	1Tj FWD:	1-track jump forward.
2	1Tj REV:	1-track jump reverse.
3	2Tj FWD:	2-track jump forward.
4	2Tj REV:	2-track jump reverse.
5	NTj FWD:	N-track jump forward.
6	NTj REV:	N-track jump reverse.
7	500Tj FWD:	Fine search forward.
8	500Tj REV:	Fine search reverse.
9	10k/20k FWD:	Direct search forward.
0	10k/20k REV:	Direct search reverse.

– The following commands are valid for DVD-DL disc only –

⇥	(L1 → L0)	Focus jump forward. (Trk/Sled Servo OFF)
⇤	(L0 → L1)	Focus jump reverse. (Trk/Sled Servo OFF)
↑	(L1 → L0)	Layer jump forward. (Trk/Sled Servo ON)
↓	(L0 → L1)	Layer jump reverse. (Trk/Sled Servo ON)

4. Manual Adjustment

```
        Manual Adjustment:Up/Down
1. TRK. Offset
2. Focus Gain
3. TRK. Gain
4. Focus Offset
5. Focus Balance
6. L.F. Offset
7. Analog FRSW
8. PLL Dac Gain
9. EQ BOOST
0. GD ADJ
Adjustment: Up/Down
                     SA. ------ SI. -- EMG. 00
DVD SL 12cm                          Jitter FF
```

On this screen, each item can be adjusted manually. Select the desired number 1 to 0 from the remote commander, and current setting for the selected item will be displayed, then increase or decrease numeric value with ↑ key or ↓ key. This value is stored in the EEPROM. If CLV has been applied, the jitter is displayed for reference for the adjustment.

1	TRK. Offset:	Adjusts tracking offset.
2	Focus Gain:	Adjusts focus gain.
3	TRK. Gain:	Adjusts track gain.
4	Focus Offset:	Adjusts focus offset.
5	Focus Balance:	Adjusts focus balance.
6	L.F. Offset:	Adjusts loop filter offset.
7	Analog FRSW:	Sets select switch of analog feedback circuit.
8	PLL Dac Gain:	Adjusts D/A converter gain of PLL.
9	EQ BOOST:	Adjusts boost amount of boost of equalizer.
0	GD ADJ:	Adjusts group delay amount.

5. Auto Adjustment

```
                 Auto Adjustment

1. Auto TRK. Offset
2. Auto Focus Balance
3. Auto Focus Offset
4. Auto Focus Gain
5. Auto TRK. Gain
6. Auto EQ
7. Auto L.F. Offset
8. Auto Group Delay

             SA. 04EF905 SI. 00    EMG. 00
DVD SL 12 cm                        Jitter FF
```

On this screen, each item can be adjusted automatically. Select the desired number 1 to 8 from the remote commander, and selected item is adjusted automatically.

1 Auto TRK. Offset: Adjusts tracking offset.
2 Auto Focus Balance: Adjusts focus balance.
3 Auto Focus Offset: Adjusts focus offset.
4 Auto Focus Gain: Adjusts focus gain.
5 Auto TRK. Gain: Adjusts track gain.
6 Auto EQ:
7 Auto L.F. Offset: Adjusts loop filter offset.
8 Auto Group Delay:

6. Memory Check

The display image is shown below and three screens in total can be selected.

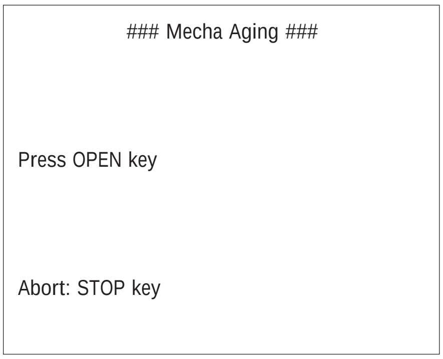
```
EEPROM DATA 1                    -– DL -–
                   CD LCD     SL    L0    L1
Focus Gain          xx xx     xx    xx    xx
TRK. Gain           xx xx     xx    xx    xx
FCS Balnce          xx xx     xx    xx    xx
Focus Bias          xx xx     xx    xx    xx
TRV Offset          xx xx     xx    xx    xx
L.F. Offset         xx xx     xx    xx    xx
EQ. Boost           xx xx     xx    xx    xx
_
UP     : Last Data
DOWN  : Next Data
CLEAR : Default Set                  page.1/3
```

```
EEPROM DATA 2                    -– DL -–
                   CD LCD     SL    L0    L1
RF Jitter           xx --     xx    xx    xx
RF Level            xx --     xx    --    --
FE Level            xx --     xx    --    --
FE Balance          xx --     xx    --    --
TRV.Level           xx --     xx    --    --
TE Gain             xx xx     --    --    --
PI Level            xx --     xx    xx    --
_
UP     : PREV Data
DOWN  : Next Data
CLEAR : Default       Set            page.2/3
```

```
EEPROM DATA 3                    -– DL -–
                   CD LCD     SL    L0    L1
Analog FRSW         xx xx     xx    xx    xx
PLL Dac Gain        xx xx     xx    xx    xx
Mirror Time         xx xx     xx    xx    xx

_  THR A&L          xx xx    xx/xx  xx    xx
UP     : PREV Data
DOWN  : First Data
CLEAR : Default       Set            page.3/3
```

On this screen, current servo adjusted data stored in the EEPROM are displayed. The adjusted data are initialized by pressing the CLEAR key, but be careful that they are not recoverable after initialization.
Before clearing the adjusted data, make a note of the set data.
This screen will also appear if 0 All is selected in the Drive Auto Adjustment. In this case, default setting cannot be made.
Data of “THR A & L” data on the second page cannot be change if default setting is once made.

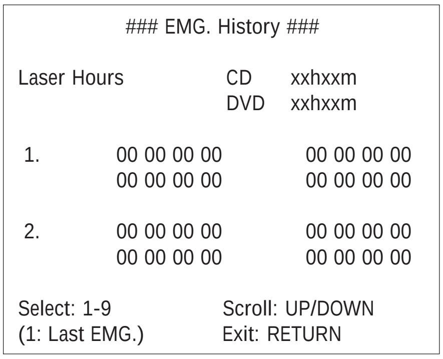
6-6. MECHA AGING



```
### Mecha Aging ###



Press OPEN key




Abort: STOP key
```

On the Test Mode Menu screen, selecting 3 executes the aging of mechanism. First, open the tray and load a disc. Press the ▷ key, and the aging will start. During aging, the number of the repeat cycle is displayed. Aging can be aborted at any time by pressing the ■ key. After the operation has stopped, unload the disc and press again the ■ key or the RETURN key to return to the Test Mode Menu.

6-7. EMERGENCY HISTORY

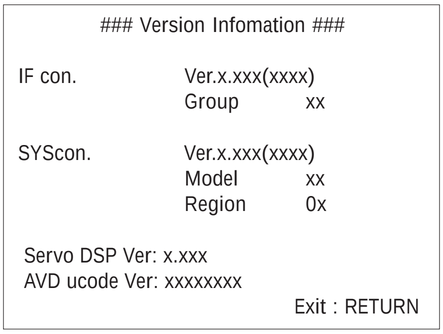


```
### EMG. History ###

Laser Hours          CD     xxhxxm
                     DVD    xxhxxm

 1.       00 00 00 00        00 00 00 00
          00 00 00 00        00 00 00 00

 2.       00 00 00 00        00 00 00 00
          00 00 00 00        00 00 00 00

Select: 1-9          Scroll: UP/DOWN
(1: Last EMG.)       Exit: RETURN
```

On the Test Mode Menu screen, selecting 4 displays the information such as servo emergency history. The history information from last "1" up to "10" can be scrolled with ↑ key or ↓ key. Also, specific information can be displayed by directly entering that number with the ten-key pad from 1 to 9.
(Emergency history code is shown separately.)
The upper two lines display the laser ON total hours. Data below minutes are omitted.

◎ Clearing History Information
Clearing laser hours
Press DISPLAY and CLEAR keys in this order.
◎ Both CD and DVD data are cleared.
Clearing emergency history
◎ Press TOP MENU and CLEAR keys in this order.
Initializing set up data
Press MENU and CLEAR keys in this order.
The data have been initialized when "Set Up Initialized" message is displayed.
The EMG. History display screen will be restored soon.

6-8. VERSION INFORMATION



```
### Version Infomation ###

IF con.            Ver.x.xxx(xxxx)
                   Group       xx

SYScon.            Ver.x.xxx(xxxx)
                   Model       xx
                   Region      0x

 Servo DSP Ver: x.xxx
 AVD ucode Ver: xxxxxxxx
                                Exit : RETURN
```

The ROM version, region code, etc. are displayed if 5 is selected in the Test Mode Menu. The parenthesized hexadecimal number in the version number field indicates the checksum value of the ROM.

*** Note after Downloading**
After downloading ROM data, sometimes it happens that checksum is not the same as that of ROM data that has been downloaded. In such a case, go back to the menu screen and select "0. Syscon Diagnosis", then select "1. All" in "2. Version". If the result of this operation does not give an agreement, it must be either Download error or ROM error.

6-9. VIDEO LEVEL ADJUSTMENT

On the Test Mode Menu screen, selecting 6 displays color bars for video level adjustment. During display of color bars, OSD disappears but the menu screen will be restored if pressing any key.

6-10. IF CON SELF DIAGNOSTIC FUNCTION

1. AF-98 BOARD (IF CON) TEXT MODE

The AF-98 board (IF CON) test mode is the IF CON self-diagnosis mode. THe IF CON can diagnose the functions of the AF98 board that the IF CON controls. Normally, the IF CON makes a serial communication with the SYSTEM CONTROL and operates following the commands from the SYSTEM CONTROL, but in the Test mode, the IF CON operates independently from the SYSTEM CONTROL.

In the test mode, the following functions can be checked.

1. Button function
2. Remote commander receiving function
3. SYSTEM CONTROL-IF CON serial communication
4. Clisk shuttle function
5. Fluorescent display tube lighting check
   Grid check
   Anode check
6. LED control function

In the test mode, the main unit operates same as usual, except voltage monitoring, communication, display of fluorescent display tube, and LED control.

1. Theroutine that monitors +3.3V (PCONT) of MB-108 board is not provided.
2. The monitoring timer for serial communication with the SYSTEM CONTROL is not provided. The main unit is not placed in the Standby mode, even if the communication with SYSTEM CONTROL is normal.
3. Display of fluorescent display tube.
   (Normally, display is mode following the commands from SYSTEM CONTROL).
4. LED control.
   (Normally, control is mode made following the commands from SYSTEM CONTROL).

2. OPERATION OF SELF CHECK MODE

The Self Check mode is the function to conduct the basic test to the FL display and DVD panel section.

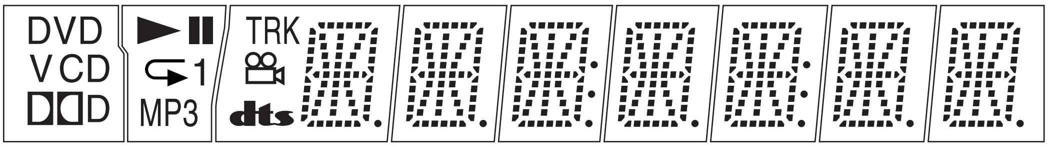
2-1. Self Check Mode Transition Processing

At the AC Power ON after reset of IF CON is released with the MB-108 board are not connected to the AF-98 board, or while pressing the ■ key on the main unit with the IF CON in STANDBY mode, enter RETURN → DISPLAY (or SETUP) on the remote commander, and the main unit transits to the Self Check Mode.

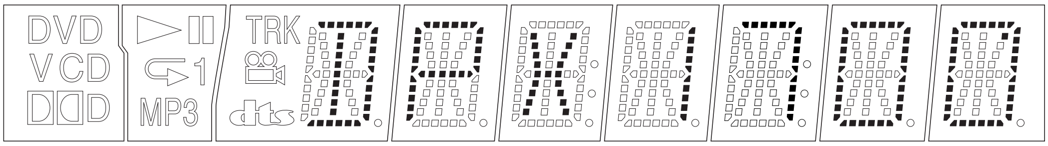
2-2. Operation of Auto Self Check

When the Self Check mode becomes active at the AC Power ON or by key input, the test display of the following steps (1) to (4) is repeated.

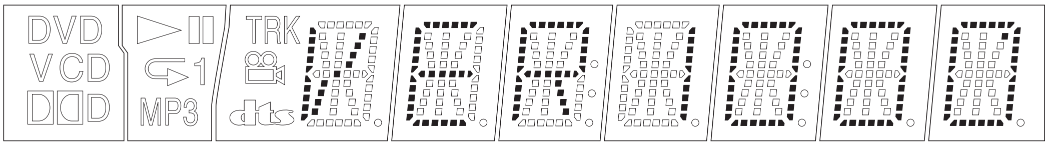
(1) FLD and LED all ON (for 5 seconds)


DVD
VCD
DD
1
MP3
TRK
dts

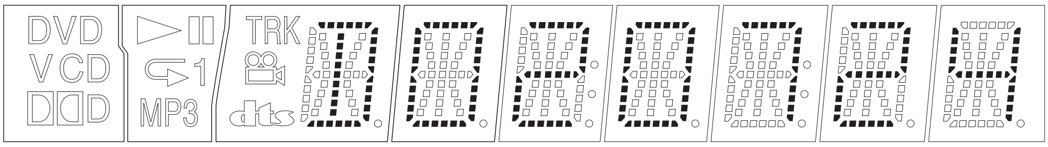
(2) MODEL display (for 2 seconds)


DVD
VCD
DD
1
MP3
TRK
dts

(3) Version display (for 2 seconds)


DVD
VCD
DD
1
MP3
TRK
dts

(4) ROM creation date display (for 2 seconds)


DVD
VCD
DD
1
MP3
TRK
dts

2-3. Each Self Check Function

Each Self Check function tests the FLD display, LED display, and key input.

Input Voltage [V]	IC404: Pin No. (Signal)			
	PIN ㉝ (BRNKEY)	PIN ㉞ (PLAY)	PIN ㉟ (O/C)	PIN ㊱ (TVS)
0 - 0.21	-	PLAY	OPEN/CLOSE	PIC MODE
0.63 - 0.86	-	NEXT	-	TVS
1.23 - 1.55	-	PREVIOUS	-	-
1.9 - 2.25	-	PAUSE	-	-
2.63 - 2.86	-	STOP	-	-

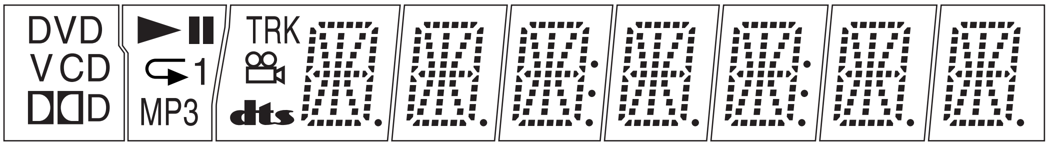
2-3-1. FLD and LED All ON
2-3-1-1. Transition Keys in Self Check Mode

- ⏏ key and ■ key on the main unit
- ← key on the main unit and the remote commander

2-3-1-2. Operation and display

In this mode, all LEDs except STANDBY LED and all segments of FLD turn ON.

• Example of FLD all ON



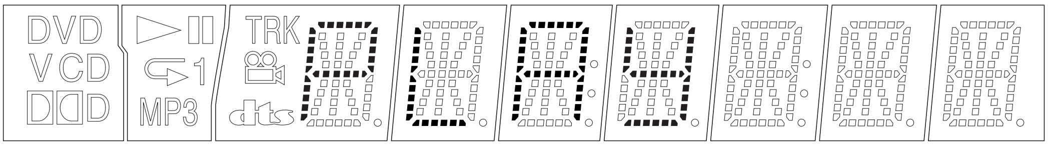
2-3-2. Main Unit Key Name Display and Key Code Display
2-3-2-1. Transition Keys in Self Check Mode

- Keys on the main unit except keys transited in Self Check Mode

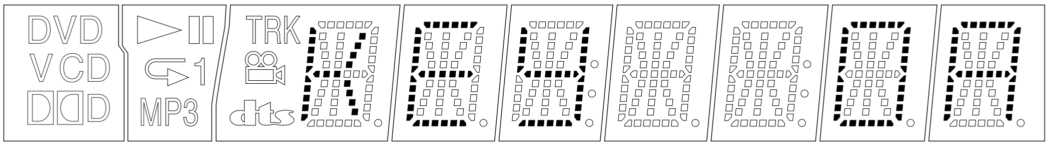
2-3-2-2. Operation and Display

When a key on the main unit is pressed in the Self Check mode, the name of that key is displayed on the FLD. Aslo, the key name display and the key code display can be switched with the DISPLAY key on the remote commander, "NOTHING" is displayed when nothing is entered. Aslo, VIDEO CD, DVD, and CD segments turn on when a communication error occurred.

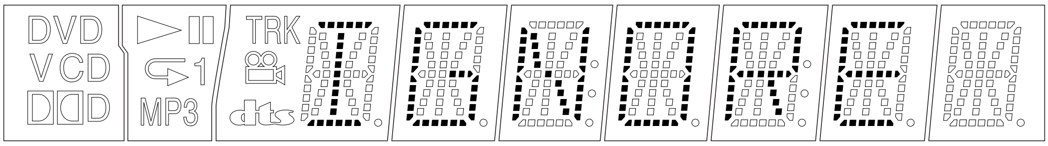
• FLD display (at input of ▷ key on the main unit)



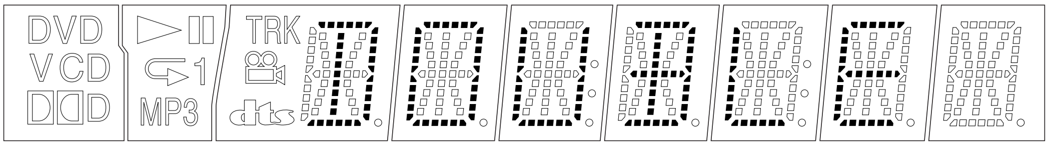
- **Key code display**
  (at input of ▷ key, key code: 0Ah)


DVD
VCD
TRK
MP3
1
dts

- **At input of faulty voltage**


DVD
VCD
TRK
MP3
1
dts

- **When key is pressed double**


DVD
VCD
TRK
MP3
1
dts

2-3-3. Remote Commander Key Name Display and Key Code Display

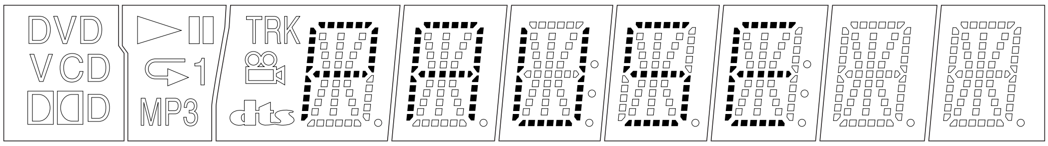
2-3-3-1. Transition Keys in Self Check Mode

- Remote commander keys except keys transited in Self Check Mode

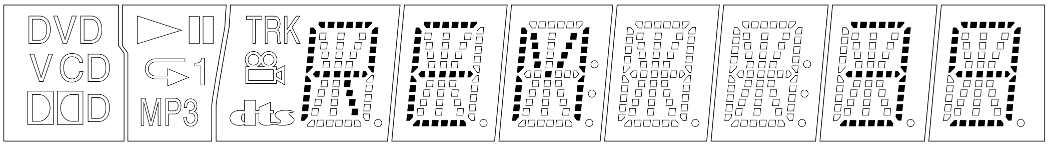
2-3-3-2. Operation and Display

When a key on the remote commander is pressed in the Self Check Mode, the name of that key is displayed on the FLD. Aslo, the key name display and the key code display can be switched with the DISPLAY key on the remote commander. "NOTHING" is displayed when nothing is entered. Aslo, VIDEO CD, DVD, and CD segments turn on when a communication error occurred.

- **Remote commander key name display (at input of ❚❚ key)**


DVD
VCD
TRK
MP3
1
dts

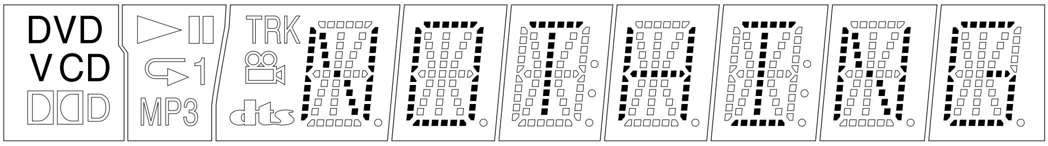
- **Remote commander key code display**
  (at input of ❚❚ key, key code:39h)


DVD
VCD
TRK
MP3
1
dts

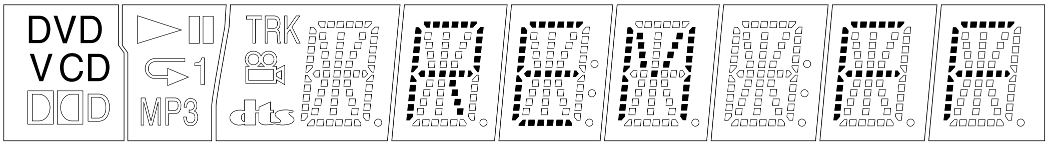
2-3-4. Communication Monitoring Display

The communication state is momitored and displayed while the key name on the main unit and the remote commander is displayed. When the communication to the System Controller faired, VIDEO CD, DVD, nad CD segments turn on.

- **Communication error display (at no input of key and remote commander)**



- **Communication error display (at code display without input of the remote commander)**



2-3-5. FLD Anode Test Display and SHUTTLE Click Operation Test

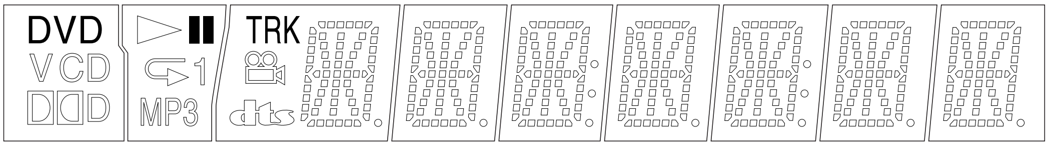
2-3-5-1. Transition Keys in Self Check Mode

- → key on the remote commander
- SHUTTLE on the remote commander during Anode Test display (This unit does not provide JOG/SHUTTLE, and therefore use another DVD remote commander having the JOG/SHUTTLE)

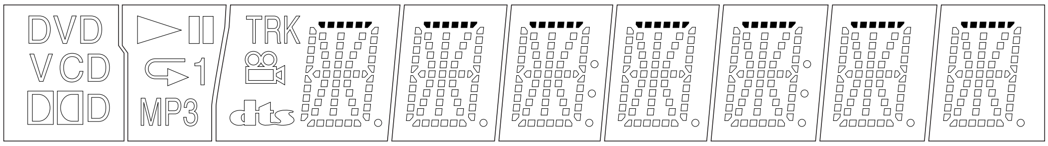
2-3-5-2. Operation and Display

The Self Check Mode transits to this mode when → key is entered. This tests whether each segment turns on individually. Only the first segment of each grid of FLD turns on, and each time the SHUTTLE is entered, the segment of each grid switched in order. When SHUTTLE input is clockwise, the segment switches in 1 - 2 -3 direction, or counterclockwise it switches in 3 - 2- 1 direction.

- **Display at the start of Anode Test**



↓ (Input in CW direction)



2-3-6. FLD Grid Test Display and SHUTTLE Click Operation Test

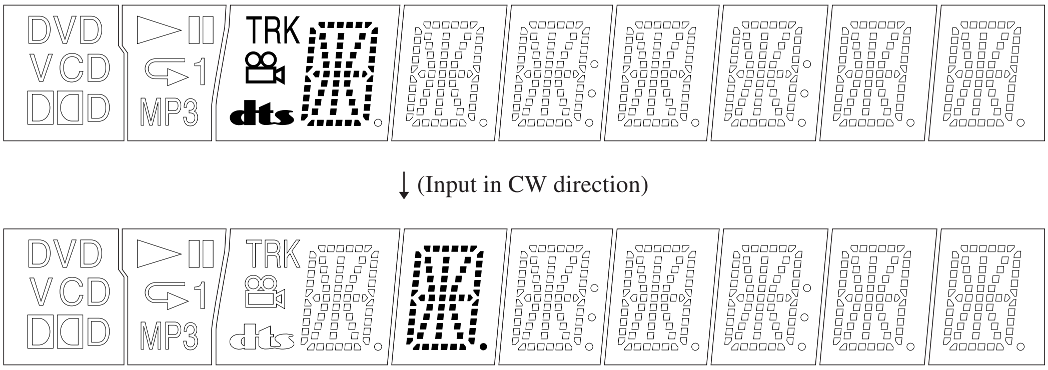
2-3-6-1. Transition Keys in Self Check Mode

- ↑ key on the remote commander
- SHUTTLE on the remote commander during Grid Test display (This unit does not provide JOG/SHUTTLE, and therefore use another DVD remote commander having the JOG/SHUTTLE)

2-3-6-2. Operation and Display

The Self Check Mode transits to this mode when ↑ key is entered. This tests whether each grid turns on individually. The first grid only of FLD turns on and other grid turn off. Each time the SHUTTLE is entered, the grid is switched in order. When SHUTTLE input is clockwise, the grid switched in 1 - 2 - 3 direction, or counterclockwise it switches in 3 - 2 - 1 direction.

• Display at the start of Grid Test



2-3-7. LED Test Display

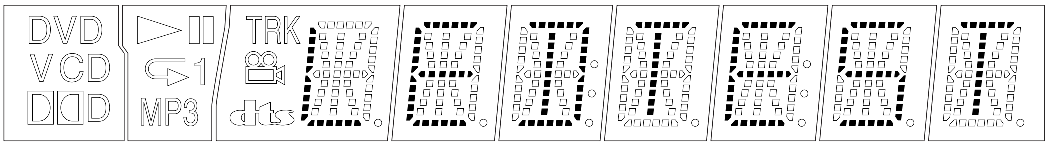
2-3-7-1. Transition Keys in Self Check Mode

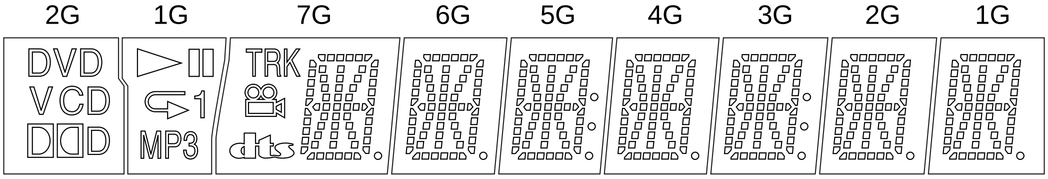
- ↓ key on the remote commander
- SHUTTLE on the remote commander during Grid Test display (This model does not provide JOG/SHUTTLE, and therefore use another DVD remote commander having the JOG/SHUTTLE)

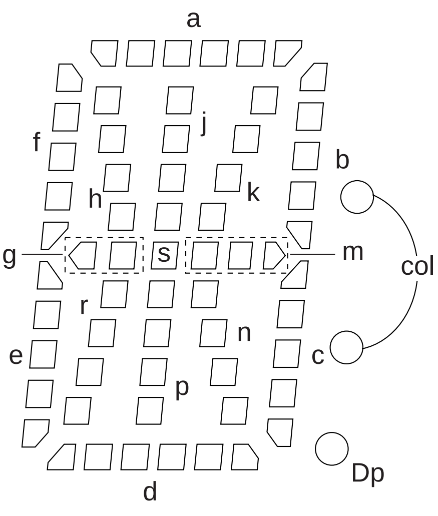
2-3-7-2. Operation and Display

LED is switched in order by the input JOG/SHUTTLE on the remote commander. Aslo, LED ON/OFF is switched by the input of same key as the function that turns on the LED conncerned.

• FLD display during LED Test




2G
1G
7G
6G
5G
4G
3G
2G
1G
DVD
VCD
DDD
1
MP3
TRK
dts


a
f
j
b
h
k
col
g
s
m
r
n
e
c
p
Dp
d

(7G-1G)

ANODE CONNECTION

	7G	6G	5G	4G	3G	2G	1G
P1	TRK		col		col	DVD	⏸
P2	a	a	a	a	a	a	a
P3	h	h	h	h	h	h	h
P4	j	j	j	j	j	j	j
P5	k	k	k	k	k	k	k
P6	b	b	b	b	b	b	b
P7	f	f	f	f	f	f	f
P8	m	m	m	m	m	m	m
P9	s	s	s	s	s	s	s
P10	g	g	g	g	g	g	g
P11	e	e	e	e	e	e	e
P12	n	n	n	n	n	n	n
P13	p	p	p	p	p	p	p
P14	r	r	r	r	r	r	r
P15	c	c	c	c	c	c	c
P16	d	d	d	d	d	d	d
P17	dts					DDD	MP3
P18						V	↻
P19	🎥					CD	1
P20	Dp	Dp	Dp	Dp	Dp	Dp	Dp

6-11. TROUBLESHOOTING

6-11-1. Cannot Enter Test Mode

You cannot enter the Test mode when either button has been pressed by any reason with the board assembled in the front panel. In this state, the power does not turn on even under normal condition (the unit is kept in standby state), and also no button is active and the remote commander is not accepted. In this case, disconnect the MB-108 board and AF-98 (CN601) board, and with the SELF CHECK (pin ⑩) of IF CON (IC404) on the AF-98 board kept in low state, supply AC, and the IF CON self-diagnosis mode will be forcibly activated. The IF CON (IC404) checks the SELF CHECK port only after the power on reset (only at AC supply, not in standby state). If any button is pressed, its name is displayed on the fluorescent display tube. But, if other than "NOTHING" is displayed though no button is pressed, it means that any button has been pressed.

6-11-2. Faults in Test Mode (MB-108 board)

1. The test mode menu is not displayed.

1-1. Board visual check

Check that the ICs of SYSCON (IC104), ROM (IC106 or IC107), AVD (IC403), ARP & SERVO (IC301) are working correctly.
Check that outside appearance of the ICs is normal.
Check that IC pins are not short-circuited.
Check that there is no soldering error.
Check that outside appearance of the capacitors and resistors is normal.

1-2. Power supply voltage check

Check the power voltage of the power connector (CN102).
Check the power voltage of SYSCON (IC104).
Check the power voltage of ROM (IC106 or IC107).
Check the power voltage of AVD (IC403).
Check the power voltage of ARP & SERVO (IC301).
If the power voltage has any abnormality →
  Check that the power supply lines are not shorted.
  Check that there is no soldering error.
If any abnormality cannot be found still →
  Check that each IC is working normally.

1-3. Clock signal check

Measure the clock signal frequency at CPUCK (CL101) of SYSCON (IC104) with an oscilloscope.
If the 8.25 MHz signal appears. → Check the machine according to section 1-3-1
If the 33 MHz signal appears. → Check the machine according to section 1-3-2.
If other frequencies are output.
  R110 and R113 have defective soldering, X101 crystal oscillator is defective.
If the measurement point is fixed to either "H" or "L". →
  Observe XFRRST (pin-(76)) of SYSCON (IC104) with an oscilloscope.
  If the measurement point is "L", check the following items.
If the IC has defective soldering, if the IC is short-circuited.
If the measurement point is "H",
  → Component X101 or SYSCON (IC104) is defective.

1-3-1. When the 8.25 MHz signal appears at CPUCK

- Check the XRD, XWRH and CS0X signal.

Observe XRD (pin-(70)), XWRH (pin-(71)), and CS0X (pin-(58)) of SYSCON (IC104) with an oscilloscope.
If these pins are fixed to either "L" (0V) or "H" (3.3V), or if these pins stay in the center voltage, check the followings.
  Check if the signal line does not have the defective soldering.
  Check if the signal line is short-circuited with other signal lines.
  If you cannot find any problem → SYSCON (IC104) is defective.

- HA [0 to 21] signal and HD [0 to 15] signal check

Observe HA [0 to 21] (pins-(102) to (109), (111) to (118), (120), ① to ⑤) of SYSCON (IC104) and HD [0 to 15] (pins-(85) to (100)) with an oscilloscope.
If these pins are fixed to either "L" (0V) or "H" (3.3V), or if the HA pin stays in the center voltage, check the followings. (HD stays in the center voltage when it is normal.)
  → Check if the signal line does not have the defective soldering, or is short-circuited with other signal line or SYSCON (IC104) is defective.

- Reset signal check

Check if XFRRST (pin-(76)) of SYSCON (IC104) normal or not.
The signal starts up at the same time as Vcc → Defective soldering.

If the trouble does not apply to any of the above-described phenomenon, SYSCON (IC104) or ROM (IC106 or IC107) is defective.

1-3-2. When the 33 MHz signal appears at CPUCK

- WAIT signal check

Observe XWAIT (pin-(67)) of SYSCON (IC104) with an oscilloscope.
If it is fixed to "L" (0V). → Observe CS2X to CS5X (pins-(60) to (63)).
If CS2X or CS3X is "L". → AVD (IC403) has defective soldering or AVD is defective.
If CS4x or CS5X is "L". → ARP & SERVO (IC301) has defective soldering or ARP & SERVO is defective.
If any one of the above is not "L". → XWAIT or CSnX is short-circuited or has the defective soldering or AVD (IC403) is defective or ARP & SERVO (IC301) is defective.
Center voltage → The XWAIT line has defective soldering or is short-circuited or AVD (IC403) is defective or ARP & SERVO (IC301) is defective or SYSCON (IC104) is defective.

- CSnX signal check

Observe CS0X to CS5X (pins-(58) to (63)) of SYSCON (IC104) with an oscilloscope.
If they are fixed to "L" (0V) or if to center voltage → Check that the ICs do not have the defective soldering or is short-circuited with the other signal lines or SYSCON (IC104) is defective.
CS0X: ROM (IC106 or IC107)
CS2X, CS3X: AVD (IC403)
CS4X, CS5X: ARP & SERVO (IC301)

If the trouble symptom does not apply to any of the above phenomenon, SYSCON (IC104) or ROM (IC106 or IC107) is defective.

2. Test mode menu is displayed but the machine stops when menu is selected

2-1. AVD (IC403) check

Observe SDCLKO (pin-(158)) of AVD (IC403) with an oscilloscope.
95 MHz → No problem
27 MHz → Observe the XRST, HA, HD, XRD, XWRH INT and CS signal waveform at the respective pins of AVDEC, AVD (IC403) is defective.
If the signal is other than the above frequencies → AVD (IC403) 27MHz signal line (CLKI (pin-(158)), SCLKIN (pin-(160))) is short-circuited, IC mount is defective, AVD (IC403) is defective, PLL (IC103) is defective.

2-2. INT signal check

Observe INT0 to 2 (pins-⑯ to ⑱) of SYSCON (IC104) with an oscilloscope.
If they are fixed to "L" (0V) or fixed to the center voltage → Check that the ICs do not have the defective soldering, or are short-circuited, SYSCON (IC104) is defective, or the following ICs are not defective.
INT0: AVD (IC403)
INT1, INT2: ARP & SERVO (IC301)

2-3. If any abnormality cannot be confirmed by the above-described checks, check the CS signal that is currently output.

The CS signal other than CS0X is being output. → IC mount is defective or the IC is defective depending on the moving CS signal.
CS2X, CS3X: AVD (IC403)
CS4X, CS5X: ARP & SERVO (IC301)

If the trouble is not applicable to any of the above phenomenon, SYSCON (IC104) or ROM (IC106 or IC107) is defective.

3. If the message 'SDSP No Ack"appears after the menu is displayed.

3-1. ARP & SERVO clock signal check

Check frequency of CLKIN (pin-(150))
33 MHz → Normal
Frequency other than 33 MHz → CLKIN is short-circuited or defective soldering or PLL (IC103) is defective or ARP & SERVO (IC301) is defective

3-2. ARP & SERVO (IC301) PLL oscillation check

Observe PLCKO (pin-(87)) of ARP & SERVO (IC301) with an oscilloscope.
If the pin is fixed to either "L" (0V) or "H" (3.3V).
If XRST if fixed to "L". XRST has the defective soldering,
In all other cases. ARP & SERVO (IC301) is defective
If it is oscillating.
HA [0 to 7] are HD [8 to 15] are short-circuited, check XSDSPIT and XSDSPCS or ARP & SERVO (IC301) is defective.

4. If trouble occurs at the specific item of the 'Diag All Check".

IC mount of the NG item is defective or IC is defective.

5. Picture and audio are not output.

Check connection of CN601
Check for the defective connection of flat cable and check of damage of the flat cable.

6. Picture is output but audio is not output.

Check the audio data output (at pins-㉔, ㉘, and ㉙) of AVD (IC403)
The audio data is not output. → AVD (IC403) or audio DAC (IC601) mount is defective or power supply is defective or AVD (IC403) or audio DAC (IC601) is defective.
PLL (IC103) 512fs output check
If the frequency or waveform has abnormality. → The signal line has defective soldering or the signal line is short-circuited with other signal lines or PLL (IC103) is defective.

7. Audio is output but picture is not output.

Observe pins-(55), (57), (59), (61), (63) and (65) of AVD (IC403) with an oscilloscope.
If the analog signal is not output. → The signal line has the defective soldering or is short-circuited or parts are defective or AVD (IC403) is defective.

6-11-3. Drive Auto Adjustment stops due to error.

The ARP & SERVO (IC301) analog circuit of MB-108 board is defective or RF-Amp (IC201) or M-Driver (IC202) peripheral circuit is defective or optical pickup block is defective or flat cable connection is defective

6-11-4. The product itself is defective.

- If MB108 does not have any problem,

  The board other than MB-108 board is defective or connection is defective or optical pickup block is defective or mechanism deck is defective

1. FL display does not light when the POWER button is pressed.

1-1. Check the EVER -15.5V (pin-②), EVER+5.0V (pin-⑪), EVER+11V (pin-⑬) voltage at CN201 of the power supply block/

If voltage is abnormal. → The power supply block is defective.

1-2. Check if the fuse on the IF board has blown of not.

If the fuse has blown → Replace the fuse.

1-3. Check the P-CONT (pin-②) at CN401 of the AF-98 board when the POWER button is pressed.

If it remains at "L",
→ The signal line has the defective soldering or it is short-circuited with other signal lines or capacitor or resistor is defective or IFCON is defective or connection between the power supply block and the AF-98 board is defective, or connector installation is defective, or the power supply block is defective.

1-4. Check if the button is kept depressed in the IFCON self mode.

If the button is kept depressed. → The front panel is defective, or AF-98 board is defective.

1-5. Check PONCHK (pin-㉚) of IFCON (IC404) on the AF-98 board.

If it is 0.5 V or more. → The power supply is defective, or AF-98 board is defective.

1-6. Check ND401 (pin-① & pin-㊳) on the AF-98 board.

If no voltage supply → Voltage driver (IC407) defective, or the AF-98 board is defective.

2. FL display light once and becomes not light when POWER button is pressed.

2-1. Check CN201 voltage of the power supply block when the FL display light on.

If voltage is abnormal. → The power supply block is defective, or the AF-98 board is defective, or MB108 is defective

2-2. Check XFRRST (pin-⑧) at CN101 on the MB-108 board.

If it is fixed to "L". → The signal line has defective soldering, or is short-circuited with other signal lines, or parts are defective.

2-3. Check IFBSY (pin-⑤), XIFCS (pin-⑥), SI0 (pin-④), SO0 (pin-①) and SC0 (pin-③) at CN101

If they are fixed to "H" or "L".
→ The signal line has defective soldering, or is short-circuited with other signal line, or parts are defective, or SYSCON (IC104) is defective
If they change between "L/H".
Connector installation is defective, or the AF-98 board is defective, or SYSCON (IC104) is defective.
If they stay in the center voltage.
Poor connection of flexible wiring board such as it is inserted in an angle diagonally, or defective soldering, or is short-circuited with other signal line.

2-4. Check PONCHK (pin-㉚) of IFCON (IC404) on the AF-98 board.

If rise-up time from 0.5 V to 1.5 V or more takes longer time, or it does not exceed 1.5 V or more. → The AF board is defective.

3. Both picture and audio are not output.

Connection between the power supply block and the AF-98 board is defective, or connection between the AF-98 board and the MB-108 board is defective, or connector installation is defective, or AF-98 board is defective.

4. Picture is not normal. (Block noise or others appear.)

The MB-103 board AVD (IC403) or SDRAM (IC404, IC405) is defective, or ARP & SERVO (IC301) is defective.

SECTION 7
ELECTRICAL ADJUSTMENT

In making adjustment, refer to 7-3. Adjustment Related Parts Arrangement.

This section describes procedures and instructions necessary for adjusting electrical circuits in this set.

Instruments required:

1) Color monitor TV
2) Oscilloscope 1 or 2 phenomena, band width over 100 MHz, with delay mode
3) Frequency counter (over 8 digits)
4) Digital voltmeter
5) Standard commander (RMT-D126J)
6) DVD reference disc
   HLX-501 (J-6090-071-A) (dual layer) (NTSC)
   HLX-503 (J-6090-069-A) (single layer) (NTSC)
   HLX-504 (J-6090-088-A) (single layer) (NTSC)
   HLX-505 (J-6090-089-A) (dual layer) (NTSC)
7) SACD reference disc
   HLXA-509 (J-6090-090-A)
8) Extention Cable (J-6090-107-A)

7-1. POWER SUPPLY CHECK

ETXNY410M0F	NS325 : PX, E, AR, BR
	NS530
	NS725P : PX, BR
	NS730P : HK, SP, KR, ME, AUS
ETXNY410E0F	NS330/NS333/NS430/NS433
HS8S2U	NS325 : US, CND, MX
	NS725P : US, CND

Mode	E-E
Instrument	Digital voltmeter
EVER +5.0 V Check	
Test point	CN201 pin ⑪
Specification	5.0 ± 0.3 Vdc
SW +3.5 V Check	
Test point	CN201 pin ⑩
Specification	3.5 ± 0.2 Vdc
SW+5 V Check	
Test point	CN201 pin ⑫
Specification	5.0 ± 0.3 Vdc
SW +11 V Check	
Test point	CN201 pin ⑤, ⑥
Specification	11.0 ± 1.0 Vdc
EVER +11 V Check	
Test point	CN201 pin ⑬
Specification	11.2 ± 1.0 Vdc
EVER –15.5 V Check	
Test point	CN201 pin ②
Specification	$-15.5 \pm^{-7.0}_{+1.0}$ Vdc

Checking method:

1) Confirm that each voltage satisfies the specification.

Note
Because the heatsink installed on the power supply board is a part of the primary side, never touch it to avoid electrical shock.

Abbreviation
US : USA model
CND : Canadian model
E : Latin America
MX : Mexico model
BR : Brazilian model
AR : Argentina model
HK : Hong Kong model
SP : Malaysia, Thai, Philippine, Indonesia, Vietnam models
TW : Taiwan model
KR : Korea model
EA : Saudi Arabia model
ME2 : Middle East model
ME5 : India, Pakistan, Morocco models
AUS : Australian,New Zealand model
RUS : Russian model
AE1 : AEP model
AE2 : AEP model

7-2. ADJUSTMENT OF VIDEO SYSTEM

1. Video Level Adjustment (MB-108 BOARD)

<Purpose>

This adjustment is made to satisfy the NTSC standard, and if not adjusted correctly, the brightness will be too large or small.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	LINE OUT (VIDEO) connector (75 Ω terminated)
Instrument	Oscilloscope
Adjusting element	RV501
Specification	$1.00\ ^{+0.04}_{-0.02}$ Vp-p

Adjusting method:

1) In the test mode initial menu “6” Video Level Adjustment, set so that color bars are generated.
2) Adjust the RV401 to attain $1.00\ ^{+0.04}_{-0.02}$ Vp-p.

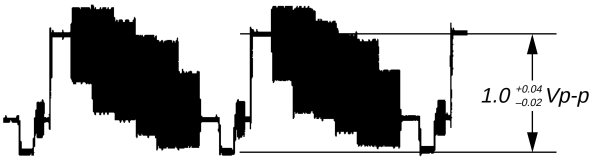


Figure 7-1

2. Checking S Video Output S-Y

<Purpose>

Check S-terminal video output. If it is incorrect, pictures will not be displayed correctly in spite of connection to the TV with a S-terminal cable.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	S VIDEO OUT (S-Y) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	1.0 ± 0.05 Vp-p

Checking method:

1) In the test mode initial menu “6” Video Level Adjustment, set so that color bars are generated.
2) Confirm that the the S-Y level is 1.0 ± 0.05 Vp-p.

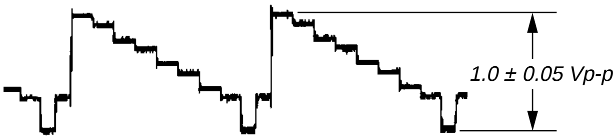


Figure 7-2

3. Checking S Video Output S-C

<Purpose>

This checks whether the S video output S-C satisfies the NTSC standard. If it is not correct, the colors will be too dark or too light.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	S VIDEO OUT (S-Y) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	1.00 ± 0.05 Vp-p

Checking method:

1) In the test mode initial menu “6” Video Level Adjustment, set so that color bars are generated.
2) Confirm that the S-C burst is 286 ± 30 mVp-p.

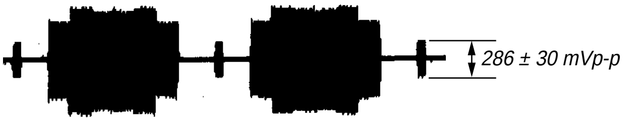


Figure 7-3

4. Checking Component Video Output Y

<Purpose>

This checks component video output Y. If it is incorrect, correct brightness will not be attained when connected to, for instance, projector.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (Y) connector, D1 VIDEO OUT connector, Pin ① (75 Ω terminated)
Instrument	Oscilloscope
Specification	1.0 ± 0.05 Vp-p

Checking method:

1) In the test mode initial menu “6” Video Level Adjustment, set so that color bars are generated.
2) Confirm that the S-C burst is “A”.

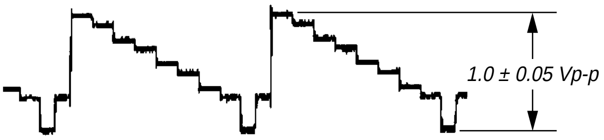


Figure 7-4

5. Checking Component Video Output B-Y

<Purpose>

This checks component video output B-Y. If it is incorrect, correct color will not be displayed when connected to, for instance, component input projector.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (CB) connector, D1 VIDEO OUT connector, Pin ③ (75 Ω terminated)
Instrument	Oscilloscope
Specification	A = 700 ± 50 mVp-p (others) 646 ± 50 mVp-p (For Us, Canada)

Checking method:

1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Confirm that the B-Y level is A.

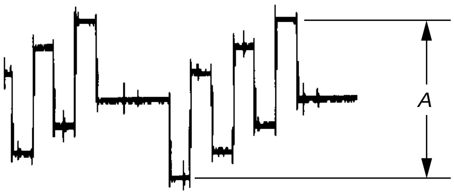


Figure 7-5

6. Checking Component Video Output R-Y

<Purpose>

This checks component video output R-Y. If it is incorrect, correct color will not be displayed when connected to, for instance, component input projector.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (CR) connector, D1 VIDEO OUT connector, Pin ⑤ (75 Ω terminated)
Instrument	Oscilloscope
Specification	B = 700 ± 50 mVp-p (others) 646 ± 50 mVp-p (For Us, Canada)

Checking method:

1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Confirm that the R-Y level is B.

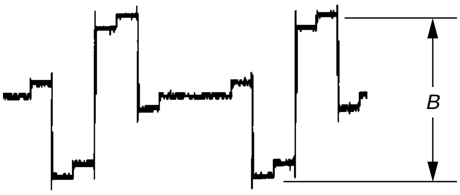
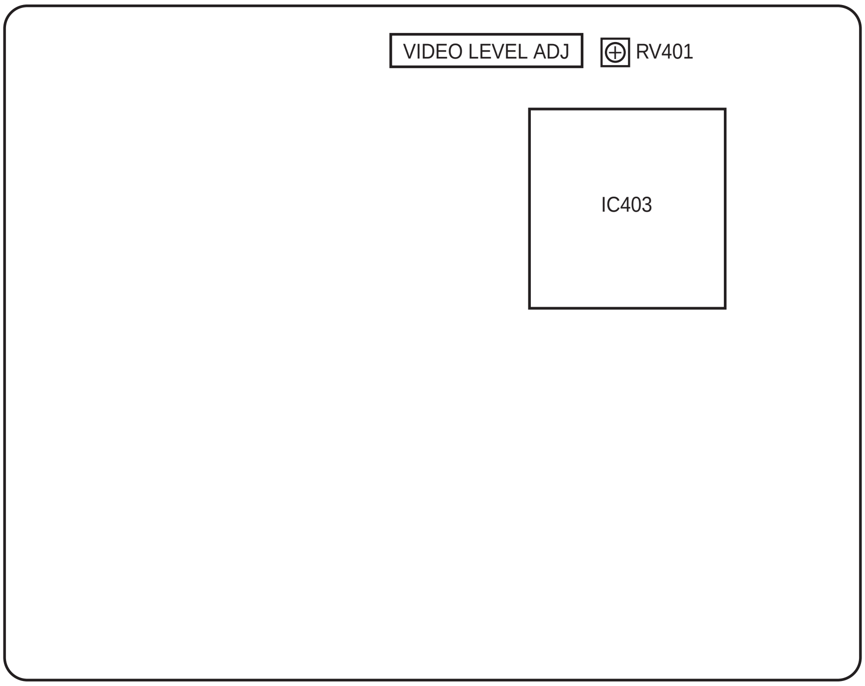


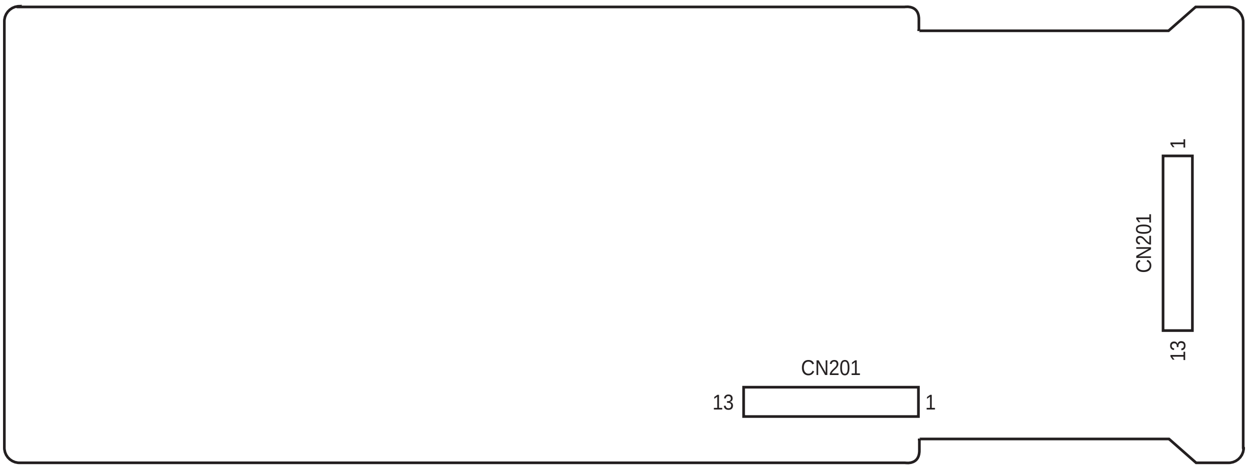
Figure 7-6

7-3. ADJUSTMENT RELATED PARTS ARRANGEMENT

MB-108 BOARD (Side A)


VIDEO LEVEL ADJ
RV401
IC403

POWER BOARD (Side A)


1
CN201
13
CN201
13
1

SECTION 8
REPAIR PARTS LIST

8-1. EXPLODED VIEWS

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color

- Abbreviation

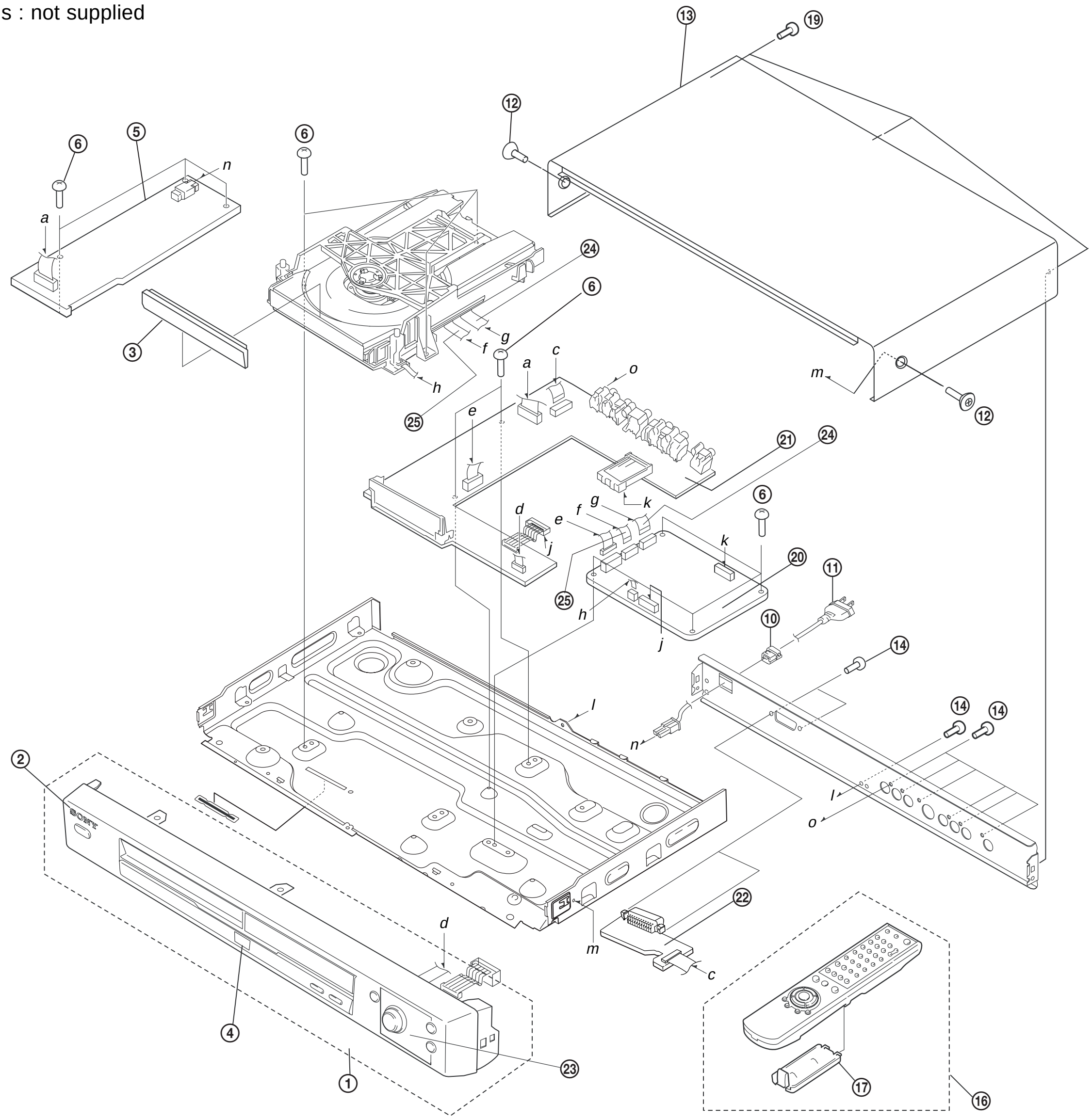
US : USA model
CND : Canadian model
PX : PX model
E : Latin America
MX : Mexico model
BR : Brazilian model
AR : Argentina model
HK : Hong Kong model
SP : Malaysia, Thai, Philippine, Indonesia, Vietnam models
TW : Taiwan model
KR : Korea model
EA : Saudi Arabia model
ME2 : Middle East model
ME5 : India, Pakistan, Morocco models
AUS : Australian,New Zealand model
UK : UK model
RUS : Russian model
AE1 : AEP model
AE2 : AEP model

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

8-1-1. MAIN SECTION

ns : not supplied



Ref. No.	Part No.	Description	Remark
20	A-6061-362-A	MB-108 BOARD COMPLETE (NS325:US,CND,PX)	
	A-6061-710-A	MB-108 BOARD COMPLETE (NS325:E)	
	A-6061-420-A	MB-108 BOARD COMPLETE (NS325:MX)	
	A-6061-939-A	MB-108 BOARD COMPLETE (NS325:BR)	
	A-6061-405-A	MB-108 BOARD COMPLETE (NS530:HK,SP,TW,KR)	
	A-6061-413-A	MB-108 BOARD COMPLETE (NS530:EA,ME2)	
	A-6061-428-A	MB-108 BOARD COMPLETE (NS530:ME5)	
	A-6061-386-A	MB-108 BOARD COMPLETE (NS530:AUS)	
	A-6061-504-A	MB-108 BOARD COMPLETE (NS330:AEP,UK)	
	A-6061-563-A	MB-108 BOARD COMPLETE (NS330:RUS)	
	A-6061-541-A	MB-108 BOARD COMPLETE (NS333/NS430/NS433)	
	A-6061-686-A	MB-108 BOARD COMPLETE (NS725P)	
	A-6061-660-A	MB-108 BOARD COMPLETE (NS730:HK,SP,KR)	
	A-6061-700-A	MB-108 BOARD COMPLETE (NS730P:ME2)	
	A-6061-702-A	MB-108 BOARD COMPLETE (NS730P:AUS)	
	A-6061-950-A	MB-108 BOARD COMPLETE (NS325P:AR)	
21	A-6061-360-A	AF-98 BOARD COMPLETE (NS325:US,CND,PX,E,MX)	
	A-6061-941-A	AF-98 BOARD COMPLETE (NS325:BR,AR)	
	A-6061-384-A	AF-98 BOARD COMPLETE (NS530)	
	A-6061-506-A	AF-98 BOARD COMPLETE (NS330/NS333)	
	A-6061-543-A	AF-98 BOARD COMPLETE (NS430/NS433)	
	A-6061-684-A	AF-98 BOARD COMPLETE (NS725P)	
	A-6061-705-A	AF-98 BOARD COMPLETE (NS730P)	
22	A-6061-508-A	ER-21 BOARD COMPLETE (NS330/NS333/NS430/NS433)	
23	A-6061-358-A	SW-384 BOARD COMPLETE (NS325:US,CND,PX,E,MX/NS530)	
	A-6061-937-A	SW-384 BOARD COMPLETE (NS325:BR,AR)	
	A-6061-513-A	SW-384 BOARD COMPLETE (NS330/NS333)	
	A-6061-546-A	SW-384 BOARD COMPLETE (NS430/NS433)	
	A-6061-689-A	SW-384 BOARD COMPLETE (NS725P/NS730P)	
24	1-824-953-11	FLAT FLEXIBLE CABLE FMM-48	
25	1-824-954-11	FLAT FLEXIBLE CABLE FMO-8	

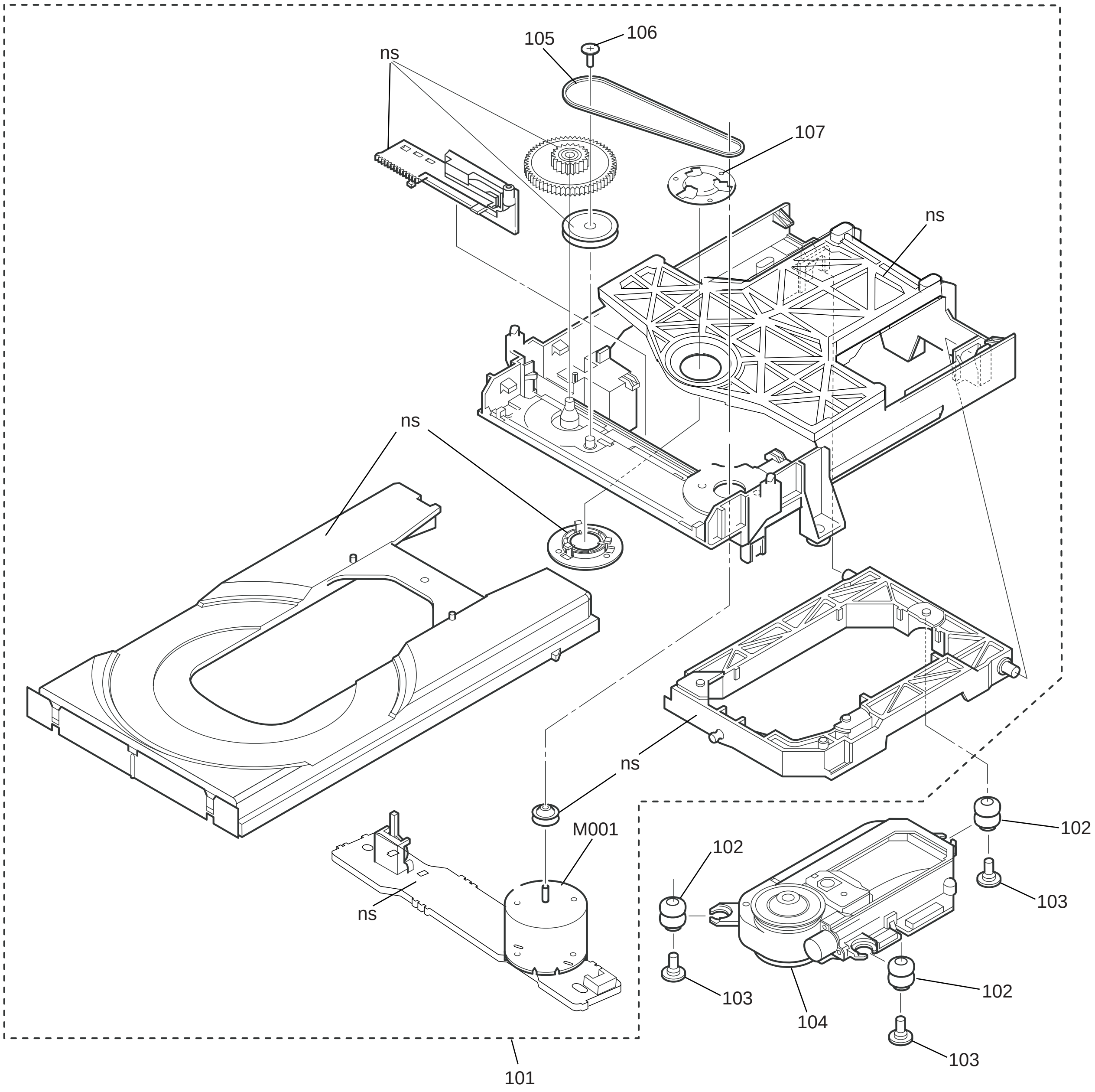
Ref. No.	Part No.	Description	Remark
1	X-3953-148-3	PANEL ASSY, FRONT (NS325:US,CND)	BLACK
1	X-3953-149-3	PANEL ASSY, FRONT (NS325:US,CND,PX,MX,E)	SILVER
1	X-3953-150-3	PANEL ASSY, FRONT (NS530:AUS,ME2)	BLACK
1	X-3953-151-3	PANEL ASSY, FRONT (NS530:AUS,HK,KR,ME,EA)	SILVER
1	X-3953-152-3	PANEL ASSY, FRONT (NS530:SP,TW)	GOLD
1	X-3953-202-4	PANEL ASSY, FRONT (NS330)	BLACK
1	X-3953-203-4	PANEL ASSY, FRONT (NS330)	SILVER
1	X-3953-204-4	PANEL ASSY, FRONT (NS333)	SILVER
1	X-3953-206-2	PANEL ASSY, FRONT (NS430)	SILVER
1	X-3953-207-2	PANEL ASSY, FRONT (NS433)	SILVER
1	X-3952-915-2	PANEL ASSY, FRONT (NS730P)	SILVER
1	X-3952-916-2	PANEL ASSY, FRONT (NS725P)	SILVER
2	3-066-225-01	SONY BADGE (5-A) (NS325/NS530)	BLACK
2	3-066-225-11	SONY BADGE (5-A) (NS325/NS530/ NS725P/NS730P)	SILVER
2	3-066-225-21	SONY BADGE (5-A) (NS530)	GOLD
2	3-066-225-31	SONY BADGE (5-A) (NS330)	BLACK
2	3-066-225-41	SONY BADGE (5-A) (NS325:BR,AR/NS330/NS333/ NS430/NS433)	SILVER
3	3-081-164-01	COVER, TRAY (NS325:US) (YH)	
3	3-081-175-01	COVER, TRAY (NS330/NS333)	
3	3-081-182-01	COVER, TRAY (P) (NS430/NS433)	
3	3-081-651-01	COVER, TRAY (P) (NS725P/NS730P)	SILVER
4	3-073-777-01	EMBLEM, DVD (NS325:US,CND/NS530)	BLACK
4	3-073-777-61	EMBLEM, DVD (NS325:US,CND,E,MX/NS530)	SILVER
4	3-073-777-81	EMBLEM, DVD (NS325:AR,BR)	SILVER
4	3-073-777-31	EMBLEM, DVD (NS330)	BLACK
4	3-073-777-41	EMBLEM, DVD (NS330/NS333/NS430/NS433)	SILVER
4	3-073-777-11	EMBLEM, DVD (NS730P/NS725P)	SILVER
⚠5	1-468-742-12	POWER BLOCK (HS8S2U) (NS325:US, CND,MX/NS725P:US,CND)	
⚠5	1-468-744-11	POWER BLOCK (ETXNY410E0F) (NS330/NS333/NS430/NS433)	
⚠5	1-468-743-11	POWER BLOCK (ETXNY410M0F) (NS325:PX,E,AR,BR/NS530/NS725P:PX/ NS730P)	

Ref. No.	Part No.	Description	Remark
6	3-970-608-01	SUMITITE (B3),+BV	
⚠10	3-073-182-02	BUSHING, CODE Except: (NS325:US (YH),BR,AR/NS330/ NS333/NS430/NS433)	
⚠10	3-073-182-12	BUSHING, CODE (NS325:US (YH),BR,AR/NS330/NS333/ NS430/NS433)	
11	1-823-597-11	CORD, POWER (NS325:US,CND,MX/NS725P:US,CND)	
11	1-769-744-92	CORD, POWER (NS325:PX,E,BR/ NS725P:PX/NS730P:HK,SP,ME2/ NS530:ME5,EA,ME2,HK,SP,TW)	
11	1-575-651-21	CORD, POWER (NS330/NS333/NS430/NS433)	
11	1-757-901-12	CORD, POWER (NS325:AR)	
11	1-782-752-31	CORD, POWER (KR:NS530/NS730P)	
11	1-790-588-12	CORD, POWER (AUS:NS530/NS730P)	
12	3-070-883-02	SCREW, TAPPING	BLACK
	3-070-883-12	SCREW, TAPPING	SILVER & GOLD
13	3-080-912-31	CASE, UPPER (NS325:US,CND/NS530:ME2,AUS)	BLACK
13	3-080-912-41	CASE, UPPER (NS325:US,CND/NS530:HK,KR,EA,ME/ NS725P/NS730P)	SILVER
13	3-080-912-51	CASE, UPPER (NS530)	GOLD
13	3-081-173-21	CASE, UPPER (NS330)	BLACK
13	3-081-173-31	CASE, UPPER (NS330/NS333/NS430/NS433)	SILVER
14	3-970-608-51	SUMITITE (B3), +BV	
16	1-477-722-11	REMOTE COMMANDER (RMT-D156P) (NS330)	BLACK
16	1-477-722-21	REMOTE COMMANDER (RMT-D157P) (NS330/NS333/NS430/NS433)	SILVER
16	1-477-723-11	REMOTE COMMANDER (RMT-D152A) (NS325)	
16	1-477-723-31	REMOTE COMMANDER (RMT-D152E) (NS530/NS730P)	
16	1-477-724-11	REMOTE COMMANDER (RMT-D153A) (NS725P)	
17	3-071-119-11	COVER, BATTERY (FOR RMT-D153A)	
17	3-081-834-01	COVER, BATTERY (FOR RMT-D156P)	
17	3-081-834-11	COVER, BATTERY (FOR RMT-D157P)	
17	3-073-096-01	COVER, BATTERY (FOR RMT-D152A/D152E)	
19	3-710-901-11	SCREW, TAPPING	

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

8-1-2. MECHANISM DECK ASSEMBLY

ns : not supplied



Ref. No.	Part No.	Description	Remark
101	A-6061-320-A	LOADING ASSY (T)	
102	3-053-847-11	INSULATOR	
103	3-080-534-01	INSULATOR SCREW	
⚠104	A-6061-908-A	KHM290AAA SERVICE ASSY	
105	3-080-478-01	BELT	
106	4-974-711-11	SCREW (2x5) PTYIGHT, (+) PTTWH	
107	3-080-476-01	YOKE	
M001	1-763-967-11	MOTOR, DC (LOADING)	

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

8-2. ELECTRICAL PARTS LIST

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Not all of the parts for POWER BLOCK (HS8S2U) are listed.
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA. . : μA. . uPA. . : μPA. .
  uPB. . : μPB. . uPC. . : μPC. .
  uPD. . : μPD. .
- CAPACITORS
  uF: μF
- COILS
  uH: μH
- Abbreviation
  CND : Canadian model
  E : Latin America
  MX : Mexico
  BR : Brazilian model
  AR : Argentina model
  HK : Hong Kong model
  SP : Malaysia, Thai, Philippine, Indonesia, Vietnam models
  TW : Taiwan model
  KR : Korea model
  EA : Saudi Arabia model
  ME2 : Middle East model
  ME5 : India, Pakistan, Morocco models
  AUS : Australian,New Zealand model
  CH : Chinese model
  AE1 : AEP model
  AE2 : AEP model
  RUS : Russian model

Ref. No.	Part No.	Description			Remark
*	A-6061-360-A	AF-98BM BOARD COMPLETE			
		(NS325:US,CND,PX,E,MX)			
		*******************************			
*	A-6061-941-A	AF-98 BOARD COMPLETE			
		(NS325:BR,AR)			
		*******************************			
*	A-6061-384-A	AF-98 BOARD COMPLETE			
		(NS530)			
		*******************************			
*	A-6061-506-A	AF-98 BOARD COMPLETE			
		(NS330/NS333)			
		*******************************			
*	A-6061-543-A	AF-98 BOARD COMPLETE			
		(NS430/NS433)			
		*******************************			
*	A-6061-684-A	AF-98 BOARD COMPLETE			
		(NS725P)			
		*******************************			
*	A-6061-705-A	AF-98 BOARD COMPLETE			
		(NS730P:HK,SP,KR,ME2,AUS)			
		*******************************			
		<CAPACITOR>			
C101	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C102	1-104-660-91	ELECT	47UF	20.00%	16V
C107	1-104-660-91	ELECT	47UF	20.00%	16V
C109	1-165-176-11	CERAMIC CHIP	0.047UF	10.00%	16V
C110	1-104-660-91	ELECT	47UF	20.00%	16V
C111	1-104-660-91	ELECT	47UF	20.00%	16V
C112	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C112	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
		(NS325/NS530/NS725P/NS730P)			
C113	1-104-660-91	ELECT	47UF	20.00%	16V
C114	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C114	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C201	1-164-739-11	CERAMIC CHIP	560PF	5.00%	50V
C202	1-164-739-11	CERAMIC CHIP	560PF	5.00%	50V
C203	1-164-218-11	CERAMIC CHIP	180PF	5.00%	50V
C204	1-164-218-11	CERAMIC CHIP	180PF	5.00%	50V
C205	1-164-218-11	CERAMIC CHIP	180PF	5.00%	50V
C206	1-164-218-11	CERAMIC CHIP	180PF	5.00%	50V
C207	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C208	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C209	1-126-960-11	ELECT	1UF	20.00%	50V
C210	1-104-660-91	ELECT	47UF	20.00%	16V
C211	1-104-660-91	ELECT	47UF	20.00%	16V
C212	1-126-960-11	ELECT	1UF	20.00%	50V
		(NS330/NS333/NS430/NS433)			
C213	1-126-934-11	ELECT	220UF	20.00%	16V
C215	1-164-230-11	CERAMIC CHIP	220PF	5.00%	50V
		(NS530/NS330/NS333/NS430/NS433/NS730P)			
C216	1-164-230-11	CERAMIC CHIP	220PF	5.00%	50V
		(NS530/NS330/NS333/NS430/NS433/NS730P)			
C222	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C223	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C224	1-104-660-91	ELECT	47UF	20.00%	16V
C227	1-104-660-91	ELECT	47UF	20.00%	16V
		(NS530/NS430/NS433/NS725P/NS730P)			
C228	1-104-660-91	ELECT	47UF	20.00%	16V
C229	1-104-660-91	ELECT	47UF	20.00%	16V
C244	1-126-947-11	ELECT	47UF	20.00%	35V
C401	1-104-660-91	ELECT	47UF	20.00%	16V
C411	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C415	1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C418	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C420	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C423	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C424	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C426	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C427	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C428	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C471	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C472	1-164-230-11	CERAMIC CHIP	220PF	5.00%	50V
C475	1-124-236-91	ELECT	47UF	20.00%	16V
C476	1-126-947-11	ELECT	47UF	20.00%	35V
C478	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C479	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C480	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C481	1-119-774-11	ELECT	100UF	20.00%	16V
C482	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C483	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C484	1-104-665-11	ELECT	100UF	20.00%	25V
C487	1-104-662-91	ELECT	22UF	20.00%	25V
C488	1-104-662-91	ELECT	22UF	20.00%	25V
C490	1-162-974-11	CERAMIC CHIP	0.01UF		50V

AF-98

Ref. No.	Part No.	Description	Remark
		<CONNECTOR>	
CN102	1-815-149-11	CONNECTOR, FPC/FFC(1MM PIC)21P (NS330/NS333/NS430/NS433)	
CN203	1-816-367-31	CONNECTOR, BOARD TO BOARD 25P	
CN400	1-961-633-11	MF-128	
CN401	1-816-365-21	CONNECTOR, BOARD TO BOARD 9P	
CN402	1-815-382-11	CONNECTOR, FPC/FFC 7P	
CN405	1-785-530-11	PIN, CONNECTOR (PC BOARD) 10P (NS325/NS530/NS725P/NS730P)	
CN471	1-564-683-11	PIN, CONNECTOR 13P	
CN471	1-573-911-11	PIN, CONNECTOR 13P	
		<DIODE>	
D108	8-719-067-40	DIODE STZ6.8N-T146 (NS325/NS530/NS725P/NS730P)	
D109	8-719-067-40	DIODE STZ6.8N-T146 (NS325/NS530/NS725P/NS730P)	
D201	8-719-050-38	DIODE M1MA152WK-T1	
D201	8-719-914-43	DIODE DAN202K-T-146	
D202	8-719-050-37	DIODE M1MA152WA-T1	
D203	8-719-914-45	DIODE DAP202K-T-146 (NS330/NS333/NS430/NS433)	
D204	8-719-404-50	DIODE MA111-TX	
D204	8-719-988-61	DIODE 1SS355TE-17	
D401	6-500-564-01	DIODE UB3803X-J582K (NS725P/NS730P)	
		<FERRITE BEAD>	
FB471	1-216-295-00	SHORT CHIP 0	
		<IC>	
IC102	8-759-826-45	IC LA73050-TLM (NS325/NS530)	
IC102	8-759-826-46	IC LA73051-TLM (NS330/NS333/NS430/NS433)	
ET471	1-537-738-21	TERMINAL, EARTH	
ET472	1-537-738-21	TERMINAL, EARTH	
IC102	6-701-820-01	IC LA73053-TLM-E (NS725P/NS730P)	
IC103	8-759-662-86	IC NJM79M05DL1A(TE2)	
IC103	8-759-667-17	IC L79M05TLL-SONY-TL	
IC201	6-701-937-01	IC TJM4558CDT	
IC201	8-759-249-16	IC NJM4558M-TE2	
IC201	8-759-425-23	IC BA4558F-E2	
IC203	8-759-711-59	IC NJM78L05UA-TE1	
IC204	8-749-017-31	IC GP1FA550TZ (NS530/NS430/NS433/NS725P/NS730P)	
IC404	6-802-768-01	IC 86CK74AFG-4H19(M)	
IC407	6-703-743-01	IC AN13992A	
IC408	6-703-742-01	IC S-80830CNUA-B8P-T2 (NS325/NS530/NS725P/NS730P)	
IC473	6-701-875-01	IC LMS8117ADTX-1.8/NOPB	
IC474	8-759-666-12	IC MM1385DNLE	
		<JACK>	
J102	1-793-445-11	JACK, PIN 3P (NS325/NS530/NS725P/NS730P)	
J103	1-794-198-11	CONNECTOR, S TERMINAL (NS325/NS530/NS725P/NS730P)	
J104	1-815-358-11	JACK, PIN (3P)	
J201	1-793-446-21	JACK, PIN 1P	

Ref. No.	Part No.	Description	Remark
		<JUMPER RESISTOR>	
JR101	1-216-295-00	SHORT CHIP 0	
JR102	1-216-295-00	SHORT CHIP 0	
JR103	1-216-295-00	SHORT CHIP 0	
JR104	1-216-295-00	SHORT CHIP 0	
JR107	1-216-295-00	SHORT CHIP 0	
JR108	1-216-295-00	SHORT CHIP 0	
JR109	1-216-295-00	SHORT CHIP 0	
JR110	1-216-295-00	SHORT CHIP 0	
JR111	1-216-295-00	SHORT CHIP 0	
JR112	1-216-295-00	SHORT CHIP 0	
JR113	1-216-295-00	SHORT CHIP 0	
JR114	1-216-295-00	SHORT CHIP 0	
JR115	1-216-295-00	SHORT CHIP 0	
JR202	1-216-295-00	SHORT CHIP 0	
JR203	1-216-295-00	SHORT CHIP 0	
JR204	1-216-295-00	SHORT CHIP 0	
JR205	1-216-295-00	SHORT CHIP 0	
JR206	1-216-295-00	SHORT CHIP 0	
JR208	1-216-295-00	SHORT CHIP 0	
JR209	1-216-295-00	SHORT CHIP 0	
JR210	1-216-295-00	SHORT CHIP 0	
JR211	1-216-295-00	SHORT CHIP 0	
JR212	1-216-295-00	SHORT CHIP 0	
JR214	1-216-295-00	SHORT CHIP 0	
JR215	1-216-295-00	SHORT CHIP 0	
JR401	1-216-295-00	SHORT CHIP 0	
JR403	1-216-295-00	SHORT CHIP 0	
JR404	1-216-295-00	SHORT CHIP 0	
JR405	1-216-295-00	SHORT CHIP 0	
JR406	1-216-295-00	SHORT CHIP 0	
JR407	1-216-295-00	SHORT CHIP 0	
JR408	1-216-295-00	SHORT CHIP 0	
JR409	1-216-295-00	SHORT CHIP 0	
JR410	1-216-295-00	SHORT CHIP 0	
JR411	1-216-295-00	SHORT CHIP 0	
JR413	1-216-295-00	SHORT CHIP 0	
JR415	1-216-295-00	SHORT CHIP 0	
JR417	1-216-295-00	SHORT CHIP 0	
JR418	1-216-295-00	SHORT CHIP 0	
JR419	1-216-295-00	SHORT CHIP 0	
JR420	1-216-295-00	SHORT CHIP 0	
JR421	1-216-295-00	SHORT CHIP 0	
JR422	1-216-295-00	SHORT CHIP 0	
JR423	1-216-295-00	SHORT CHIP 0	
JR424	1-216-295-00	SHORT CHIP 0	
JR425	1-216-295-00	SHORT CHIP 0	
		<FLUORESCENT INDICATOR>	
ND401	1-518-876-11	VACUUM FLUORESCENT DISPLAY	
		<IC LINK>	
PS471	1-576-508-21	IC LINK 0.7A 50V	
PS472	1-576-508-21	IC LINK 0.7A 50V	

Ref. No.	Part No.	Description			Remark
		<TRANSISTOR>			
Q104	8-729-421-19	TRANSISTOR UN2213-TX			
		(NS325/NS530/NS725P/NS730P)			
Q105	8-729-424-08	TRANSISTOR UN2111-TX			
		(NS325/NS530/NS725P/NS730P)			
Q106	8-729-230-47	TRANSISTOR 2SA1162-YG-TE85L			
		(NS330/NS333/NS430/NS433)			
Q201	8-729-010-08	TRANSISTOR MSB710-RT1			
Q202	8-729-024-89	TRANSISTOR MUN2213T1			
Q203	8-729-010-25	TRANSISTOR MSD601-RT1			
Q204	8-729-424-70	TRANSISTOR UN2217-TX			
Q205	8-729-010-05	TRANSISTOR MSB709-RT1			
Q206	8-729-421-19	TRANSISTOR UN2213-TX			
		(NS330/NS333/NS430/NS433)			
Q207	6-550-137-01	TRANSISTOR2SD1938(F)-ST(TX).SO			
Q208	6-550-137-01	TRANSISTOR2SD1938(F)-ST(TX).SO			
Q209	8-729-920-06	TRANSISTOR DTC124TK-T146			
		(NS330/NS333/NS430/NS433)			
Q210	8-729-424-02	TRANSISTOR 2SB709A-QRS-TX			
		(NS330/NS333/NS430/NS433)			
Q211	8-729-010-25	TRANSISTOR MSD601-RT1			
Q216	8-729-010-05	TRANSISTOR MSB709-RT1			
Q472	8-729-048-28	TRANSISTOR 2SD1766-T100-QR			
Q473	8-729-024-83	TRANSISTOR MUN2111T1			
		<RESISTOR>			
R121	1-216-073-91	RES-CHIP	10K	5%	1/10W
		(NS325/NS530)			
R121	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
		(NS725P/NS730P)			
R122	1-216-049-11	RES-CHIP	1K	5%	1/10W
		(NS330/NS333/NS430/NS433)			
R125	1-216-295-00	SHORT CHIP	0		
R127	1-216-021-00	RES-CHIP	68	5%	1/10W
		(NS325/NS530/NS725P/NS730P)			
R128	1-216-021-00	RES-CHIP	68	5%	1/10W
		(NS325/NS530/NS725P/NS730P)			
R129	1-216-073-91	RES-CHIP	10K	5%	1/10W
		(NS325/NS530/NS725P/NS730P)			
R130	1-216-021-00	RES-CHIP	68	5%	1/10W
R132	1-216-295-00	SHORT CHIP	0		
R133	1-216-021-00	RES-CHIP	68	5%	1/10W
		(NS325/NS530/NS725P/NS730P)			
R134	1-216-021-00	RES-CHIP	68	5%	1/10W
		(NS325/NS530/NS725P/NS730P)			
R135	1-216-021-00	RES-CHIP	68	5%	1/10W
		(NS325/NS530/NS725P/NS730P)			
R136	1-216-295-00	SHORT CHIP	0		
R143	1-216-295-00	SHORT CHIP	0		
R153	1-215-860-11	METAL OXIDE	33	5%	1W
R201	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W
R202	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W
R203	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W
R204	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W
R205	1-208-800-11	METAL CHIP	5.6K	0.5%	1/10W
R206	1-208-800-11	METAL CHIP	5.6K	0.5%	1/10W
R207	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R208	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R209	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R210	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R211	1-208-800-11	METAL CHIP	5.6K	0.5%	1/10W
R212	1-208-800-11	METAL CHIP	5.6K	0.5%	1/10W
R213	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R214	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
		(NS330/NS333/NS430/NS433)			
R216	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R217	1-216-073-91	RES-CHIP	10K	5%	1/10W
R218	1-216-097-11	RES-CHIP	100K	5%	1/10W
R219	1-216-105-91	RES-CHIP	220K	5%	1/10W
R220	1-216-041-00	RES-CHIP	470	5%	1/10W
R221	1-216-073-91	RES-CHIP	10K	5%	1/10W
R222	1-216-073-91	RES-CHIP	10K	5%	1/10W
R224	1-216-073-91	RES-CHIP	10K	5%	1/10W
R225	1-216-089-11	RES-CHIP	47K	5%	1/10W
R226	1-216-041-00	RES-CHIP	470	5%	1/10W
R227	1-216-041-00	RES-CHIP	470	5%	1/10W
R228	1-216-073-91	RES-CHIP	10K	5%	1/10W
R229	1-216-089-11	RES-CHIP	47K	5%	1/10W
R230	1-216-089-11	RES-CHIP	47K	5%	1/10W
R231	1-216-073-91	RES-CHIP	10K	5%	1/10W
		(NS330/NS333/NS430/NS433)			
R232	1-216-073-91	RES-CHIP	10K	5%	1/10W
		(NS330/NS333/NS430/NS433)			
R233	1-216-089-11	RES-CHIP	47K	5%	1/10W
		(NS330/NS333/NS430/NS433)			
R234	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R235	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
		(NS325/NS530/NS725P/NS730P)			
R236	1-216-073-91	RES-CHIP	10K	5%	1/10W
		(NS330/NS333/NS430/NS433)			
R237	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
		(NS330/NS333/NS430/NS433)			
R238	1-216-097-11	RES-CHIP	100K	5%	1/10W
R239	1-216-097-11	RES-CHIP	100K	5%	1/10W
		(NS330/NS333/NS430/NS433)			
R240	1-216-041-00	RES-CHIP	470	5%	1/10W
R241	1-216-041-00	RES-CHIP	470	5%	1/10W
R249	1-216-033-00	RES-CHIP	220	5%	1/10W
R251	1-216-021-00	RES-CHIP	68	5%	1/10W
R252	1-216-073-91	RES-CHIP	10K	5%	1/10W
R253	1-216-049-11	RES-CHIP	1K	5%	1/10W
R254	1-216-049-11	RES-CHIP	1K	5%	1/10W
R256	1-216-049-11	RES-CHIP	1K	5%	1/10W
R286	1-216-295-00	SHORT CHIP	0		
R407	1-216-013-00	RES-CHIP	33	5%	1/10W
R408	1-216-073-91	RES-CHIP	10K	5%	1/10W
R418	1-216-027-00	RES-CHIP	120	5%	1/10W
R428	1-216-025-11	RES-CHIP	100	5%	1/10W
R429	1-216-073-91	RES-CHIP	10K	5%	1/10W
R430	1-216-073-91	RES-CHIP	10K	5%	1/10W
R432	1-216-073-91	RES-CHIP	10K	5%	1/10W
R434	1-216-097-11	RES-CHIP	100K	5%	1/10W
R436	1-216-073-91	RES-CHIP	10K	5%	1/10W
		(NS725P/NS730P)			
R437	1-216-073-91	RES-CHIP	10K	5%	1/10W
		(NS325/NS530/NS330/NS333/NS430/NS433)			
R438	1-216-073-91	RES-CHIP	10K	5%	1/10W
R442	1-216-025-11	RES-CHIP	100	5%	1/10W
R443	1-216-025-11	RES-CHIP	100	5%	1/10W
R444	1-216-025-11	RES-CHIP	100	5%	1/10W

Ref. No.	Part No.	Description			Remark
R445	1-216-025-11	RES-CHIP	100	5%	1/10W
R446	1-216-025-11	RES-CHIP	100	5%	1/10W
R447	1-216-025-11	RES-CHIP	100	5%	1/10W
R448	1-216-025-11	RES-CHIP	100	5%	1/10W
R453	1-218-616-91	METAL CHIP	15	5%	1W
R457	1-218-628-11	METAL CHIP	150	5%	1W
R458	1-218-628-11	METAL CHIP	150	5%	1W
R459	1-216-298-00	RES-CHIP	2.2	5%	1/10W
R460	1-216-073-91	RES-CHIP	10K	5%	1/10W
R461	1-216-033-00	RES-CHIP (NS725P/NS730P)	220	5%	1/10W
R437	1-216-073-91	RES-CHIP	10K	5%	
R468	1-216-073-91	RES-CHIP	10K	5%	1/10W
R469	1-216-073-91	RES-CHIP	10K	5%	1/10W
R475	1-216-073-91	RES-CHIP	10K	5%	1/10W
R476	1-216-055-00	RES-CHIP	1.8K	5%	1/10W
R477	1-216-055-00	RES-CHIP	1.8K	5%	1/10W

<VIBRATOR>

Ref. No.	Part No.	Description
X401	1-781-472-21	VIBRATOR, CERAMIC

Ref. No.	Part No.	Description
*	A-6061-508-A	ER-021 BOARD COMPLETE (NS330/NS333/NS430/NS433) ****************************

<CAPACITOR>

Ref. No.	Part No.	Description			Remark
C901	1-104-660-91	ELECT	47UF	20.00%	16V
C902	1-104-660-91	ELECT	47UF	20.00%	16V
C903	1-104-660-91	ELECT	47UF	20.00%	16V
C905	1-104-660-91	ELECT	47UF	20.00%	16V
C907	1-104-660-91	ELECT	47UF	20.00%	16V
C913	1-127-715-91	CERAMIC CHIP	0.22UF	10%	16V
C913	1-164-489-11	CERAMIC CHIP	0.22UF	10.00%	16V
C914	1-127-715-91	CERAMIC CHIP	0.22UF	10%	16V
C914	1-164-489-11	CERAMIC CHIP	0.22UF	10.00%	16V
C943	1-162-927-11	CERAMIC CHIP	100PF	5.00%	50V
C943	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C945	1-162-927-11	CERAMIC CHIP	100PF	5.00%	50V
C945	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C962	1-162-927-11	CERAMIC CHIP	100PF	5.00%	50V
C962	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C963	1-162-927-11	CERAMIC CHIP	100PF	5.00%	50V
C963	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V

<CONNECTOR>

Ref. No.	Part No.	Description
CN901	1-815-387-11	CONNECTOR, FPC/FFC 21P
CNJ902	1-251-780-11	SOCKET, PIN (21P)
CNJ902	1-251-780-21	SOCKET, PIN 21P

<DIODE>

Ref. No.	Part No.	Description	Remark
D901	8-719-404-50	DIODE MA111-TX	
D901	8-719-988-61	DIODE 1SS355TE-17	
D907	8-719-050-37	DIODE M1MA152WA-T1	
D907	8-719-914-45	DIODE DAP202K-T-146	
D929	8-719-056-82	DIODE UDZ-TE-17-6.2B	
D929	8-719-069-56	DIODE UDZSTE-176.2B	
D929	8-719-422-64	DIODE MA8062-M-TX	
D930	8-719-056-90	DIODE UDZ-TE-17-13B	
D930	8-719-061-22	DIODE MA8130-M-TX	
D930	8-719-083-63	DIODE UDZSTE-1713B	
D932	8-719-067-40	DIODE STZ6.8N-T146	
D932	8-719-071-15	DIODE HZM6.8ZWA1TL	
D932	8-719-077-94	DIODE MAZ9120H01S0	
D933	8-719-067-40	DIODE STZ6.8N-T146	
D933	8-719-071-15	DIODE HZM6.8ZWA1TL	
D933	8-719-077-94	DIODE MAZ9120H01S0	
D934	8-719-067-40	DIODE STZ6.8N-T146	
D934	8-719-071-15	DIODE HZM6.8ZWA1TL	
D934	8-719-077-94	DIODE MAZ9120H01S0	
D935	8-719-067-40	DIODE STZ6.8N-T146	
D935	8-719-071-15	DIODE HZM6.8ZWA1TL	
D935	8-719-077-94	DIODE MAZ9120H01S0	

<FERRITE BEAD>

Ref. No.	Part No.	Description		Remark
FB907	1-414-766-22	FERRITE	0UH	
FB907	1-469-130-11	FERRITE	0UH	
FB907	1-469-796-11	FERRITE	0UH	
FB908	1-414-766-22	FERRITE	0UH	
FB908	1-469-130-11	FERRITE	0UH	
FB908	1-469-796-11	FERRITE	0UH	
FB909	1-414-766-22	FERRITE	0UH	
FB909	1-469-130-11	FERRITE	0UH	
FB909	1-469-796-11	FERRITE	0UH	
FB910	1-414-766-22	FERRITE	0UH	
FB910	1-469-130-11	FERRITE	0UH	
FB910	1-469-796-11	FERRITE	0UH	

<IC>

Ref. No.	Part No.	Description
IC901	8-759-826-47	IC LA73052-TLM

<JUMPER RESISTOR>

Ref. No.	Part No.	Description		Remark
JR901	1-216-295-91	SHORT CHIP	0	
JR902	1-216-295-91	SHORT CHIP	0	
JR905	1-216-295-91	SHORT CHIP	0	
JR906	1-216-295-91	SHORT CHIP	0	
JR909	1-216-295-91	SHORT CHIP	0	
JR912	1-216-295-91	SHORT CHIP	0	
JR913	1-216-295-91	SHORT CHIP	0	
JR914	1-216-295-91	SHORT CHIP	0	
JR915	1-216-295-91	SHORT CHIP	0	
JR918	1-216-295-91	SHORT CHIP	0	

<COIL>

Ref. No.	Part No.	Description	
L905	1-412-064-11	INDUCTOR	100UH

<TRANSISTOR>

Ref. No.	Part No.	Description
Q901	8-729-024-89	TRANSISTOR MUN2213T1
Q901	8-729-421-17	TRANSISTOR UN2213-TX
Q902	8-729-010-25	TRANSISTOR MSD601-RT1
Q902	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX
Q903	8-729-024-83	TRANSISTOR MUN2111T1

Ref. No.	Part No.	Description			Remark
Q903	8-729-424-11	TRANSISTOR UN2111-TX			
Q906	8-729-024-89	TRANSISTOR MUN2213T1			
Q906	8-729-421-17	TRANSISTOR UN2213-TX			
Q907	8-729-024-83	TRANSISTOR MUN2111T1			
Q907	8-729-424-11	TRANSISTOR UN2111-TX			
Q908	8-729-024-87	TRANSISTOR MUN2211T1			
Q908	8-729-421-20	TRANSISTOR UN2211-TX			
		<RESISTOR>			
R905	1-216-089-11	RES-CHIP	47K	5%	1/10W
R906	1-216-089-11	RES-CHIP	47K	5%	1/10W
R907	1-216-089-11	RES-CHIP	47K	5%	1/10W
R908	1-216-105-91	RES-CHIP	220K	5%	1/10W
R909	1-216-037-00	RES-CHIP	330	5%	1/10W
R910	1-216-037-00	RES-CHIP	330	5%	1/10W
R911	1-216-037-00	RES-CHIP	330	5%	1/10W
R912	1-216-037-00	RES-CHIP	330	5%	1/10W
R914	1-216-055-00	RES-CHIP	1.8K	5%	1/10W
R915	1-216-045-00	RES-CHIP	680	5%	1/10W
R916	1-216-055-00	RES-CHIP	1.8K	5%	1/10W
R917	1-216-055-00	RES-CHIP	1.8K	5%	1/10W
R918	1-216-021-00	RES-CHIP	68	5%	1/10W
R924	1-216-041-00	RES-CHIP	470	5%	1/10W
R926	1-216-041-00	RES-CHIP	470	5%	1/10W
R927	1-216-021-00	RES-CHIP	68	5%	1/10W
R928	1-216-021-00	RES-CHIP	68	5%	1/10W
R929	1-216-021-00	RES-CHIP	68	5%	1/10W
R939	1-216-017-91	RES-CHIP	47	5%	1/10W
R950	1-216-081-00	RES-CHIP	22K	5%	1/10W
R957	1-414-233-22	FERRITE	0UH		
R957	1-500-341-21	FERRITE	0UH		
R958	1-414-233-22	FERRITE	0UH		
R958	1-500-341-21	FERRITE	0UH		
R959	1-216-295-91	SHORT CHIP	0		
R961	1-216-295-91	SHORT CHIP	0		

Ref. No.	Part No.	Description			Remark
*	A-6061-362-A	MB-108 BOARD COMPLETE (NS325:US,CND,PX) ************************			
*	A-6061-710-A	MB-108 BOARD COMPLETE (NS325:E) ************************			
*	A-6061-420-A	MB-108 BOARD COMPLETE (NS325:MX) ************************			
*	A-6061-939-A	MB-108 BOARD COMPLETE (NS325:BR) ************************			
*	A-6061-950-A	MB-108 BOARD COMPLETE (NS325:AR) ************************			
*	A-6061-405-A	MB-108 BOARD COMPLETE (NS530:HK,SP,TW,KR) ************************			
*	A-6061-413-A	MB-108 BOARD COMPLETE (NS530:EA,ME2) ************************			
*	A-6061-428-A	MB-108 BOARD COMPLETE (NS530:ME5) ************************			
*	A-6061-386-A	MB-108 BOARD COMPLETE (NS530:AUS) ************************			
*	A-6061-504-A	MB-108 BOARD COMPLETE (NS330:AEP,UK) ************************			
*	A-6061-563-A	MB-108 BOARD COMPLETE (NS330:RUS) ************************			
*	A-6061-541-A	MB-108 BOARD COMPLETE (NS333:AEP/NS430/NS433) ************************			
*	A-6061-686-A	MB-108 BOARD COMPLETE (NS725P) ************************			
*	A-6061-660-A	MB-108 BOARD COMPLETE (NS730P:HK,SP,KR) ************************			
*	A-6061-700-A	MB-108 BOARD COMPLETE (NS730P:ME2) ************************			
*	A-6061-702-A	MB-108 BOARD COMPLETE (NS730P:AUS) ************************			
		<CAPACITOR>			
C102	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C103	1-126-209-11	ELECT CHIP	100UF	20.00%	4V
C104	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C105	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C106	1-162-914-11	CERAMIC CHIP (NS325/NS530)	9PF	0.50PF	50V
C106	1-162-916-11	CERAMIC CHIP (NS330/NS333/NS430/NS433/NS730P/NS725P)	12PF	5.00%	50V
C107	1-162-915-11	CERAMIC CHIP (NS325/NS530)	10PF	0.50PF	50V
C107	1-162-916-11	CERAMIC CHIP (NS330/NS333/NS430/NS433/NS730P/NS725P)	12PF	5.00%	50V
C108	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C109	1-126-209-11	ELECT CHIP	100UF	20.00%	4V
C110	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C114	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C118	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C120	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C121	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C122	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C125	1-126-607-11	ELECT CHIP	47UF	20.00%	4V
C126	1-126-206-11	ELECT CHIP	100UF	20.00%	6.3V
C127	1-126-204-11	ELECT CHIP	47UF	20.00%	16V
C128	1-126-246-11	ELECT CHIP	220UF	20.00%	4V
C129	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C130	1-162-970-11	CERAMIC CHIP (NS530/NS330/NS333/NS433/NS730P)	0.01UF	10.00%	25V
C201	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C202	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C203	1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C204	1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C210	1-162-966-11	CERAMIC CHIP	0.0022UF	10.00%	50V
C211	1-162-966-11	CERAMIC CHIP	0.0022UF	10.00%	50V
C212	1-162-966-11	CERAMIC CHIP	0.0022UF	10.00%	50V
C213	1-162-966-11	CERAMIC CHIP	0.0022UF	10.00%	50V
C214	1-164-245-11	CERAMIC CHIP	0.015UF	10.00%	25V
C215	1-162-927-11	CERAMIC CHIP	100PF	5.00%	50V

MB-108

Ref. No.	Part No.	Description			Remark
C216	1-164-230-11	CERAMIC CHIP	220PF	5.00%	50V
C218	1-162-965-11	CERAMIC CHIP	0.0015UF	10.00%	50V
C219	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C220	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C221	1-124-779-00	ELECT CHIP	10UF	20.00%	16V
C225	1-162-927-11	CERAMIC CHIP	100PF	5.00%	50V
C226	1-164-230-11	CERAMIC CHIP	220PF	5.00%	50V
C228	1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C229	1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C230	1-162-968-11	CERAMIC CHIP	0.0047UF	10.00%	50V
C232	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C233	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C234	1-126-205-11	ELECT CHIP	47UF	20.00%	6.3V
C235	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C236	1-164-230-11	CERAMIC CHIP	220PF	5.00%	50V
C238	1-124-779-00	ELECT CHIP	10UF	20.00%	16V
C240	1-164-677-11	CERAMIC CHIP	0.033UF	10.00%	16V
C241	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C242	1-126-205-11	ELECT CHIP	47UF	20.00%	6.3V
C243	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C244	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C245	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C246	1-164-677-11	CERAMIC CHIP	0.033UF	10.00%	16V
C247	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C248	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C249	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C250	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C251	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C252	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C253	1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C254	1-162-968-11	CERAMIC CHIP	0.0047UF	10.00%	50V
		(Except: NS325:AR)			
C254	1-107-826-11	CERAMIC CHIP	0.1UF	10%	16V
		(NS325:AR)			
C255	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C256	1-165-176-11	CERAMIC CHIP	0.047UF	10.00%	16V
C257	1-165-176-11	CERAMIC CHIP	0.047UF	10.00%	16V
C258	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C259	1-162-964-11	CERAMIC CHIP	0.001UF	10.00%	50V
C260	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C261	1-164-390-91	CERAMIC CHIP	330PF	5.00%	50V
C262	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C263	1-124-779-00	ELECT CHIP	10UF	20.00%	16V
C264	1-117-863-11	CERAMIC CHIP	0.47UF	10.00%	6.3V
C265	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C266	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
		(Except: NS325:AR)			
C266	1-162-970-11	CERAMIC CHIP	0.01UF	10%	25V
		(NS325:AR)			
C270	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C271	1-126-204-11	ELECT CHIP	47UF	20.00%	16V
C272	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C273	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C304	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C305	1-162-968-11	CERAMIC CHIP	0.0047UF	10.00%	50V
C308	1-126-206-11	ELECT CHIP	100UF	20.00%	6.3V
C309	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C310	1-162-927-11	CERAMIC CHIP	100PF	5.00%	50V
C311	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C312	1-110-563-11	CERAMIC CHIP	0.068UF	10.00%	16V

Ref. No.	Part No.	Description			Remark
C313	1-164-677-11	CERAMIC CHIP	0.033UF	10.00%	16V
C314	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C315	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C316	1-162-968-11	CERAMIC CHIP	0.0047UF	10.00%	50V
C317	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C318	1-162-968-11	CERAMIC CHIP	0.0047UF	10.00%	50V
C319	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C320	1-162-968-11	CERAMIC CHIP	0.0047UF	10.00%	50V
C321	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C322	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C323	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C324	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C325	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C326	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C327	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C328	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C329	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C330	1-162-968-11	CERAMIC CHIP	0.0047UF	10.00%	50V
C331	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C332	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C333	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C334	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C335	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C337	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C338	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C339	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C340	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C343	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C344	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C401	1-124-779-00	ELECT CHIP	10UF	20.00%	16V
		(Except: NS730P/NS725P)			
C402	1-124-779-00	ELECT CHIP	10UF	20.00%	16V
C403	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
		(Except: NS730P/NS725P)			
C404	1-126-193-11	ELECT CHIP	1UF	20.00%	50V
C405	1-126-206-11	ELECT CHIP	100UF	20.00%	6.3V
		(Except: NS730P/NS725P)			
C406	1-124-779-00	ELECT CHIP	10UF	20.00%	16V
C407	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C408	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C410	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C412	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C413	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C415	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C416	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C417	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C418	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C419	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C420	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C422	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C423	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C425	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C426	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C428	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C429	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C431	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C432	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C435	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C436	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C438	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V

Ref. No.	Part No.	Description	Remark
C439	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V	
C441	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V (NS530/NS330/NS333/NS430/NS433/NS730P/NS725P)	
C442	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V (NS530/NS330/NS333/NS430/NS433/NS730P/NS725P)	
C446	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V	
C447	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V (NS530/NS330/NS333/NS430/NS433/NS730P/NS725P)	
C449	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V (NS730P/NS725P)	
C501	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V (NS730P/NS725P)	
C502	1-162-964-11	CERAMIC CHIP 0.001UF 10.00% 50V (NS730P/NS725P)	
C503	1-126-205-11	ELECT CHIP 47UF 20.00% 6.3V (NS730P/NS725P)	
C504	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V (NS730P/NS725P)	
C505	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V (NS730P/NS725P)	
C506	1-126-205-11	ELECT CHIP 47UF 20.00% 6.3V (NS730P/NS725P)	
C507	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V (NS730P/NS725P)	
C508	1-126-205-11	ELECT CHIP 47UF 20.00% 6.3V (NS730P/NS725P)	
C509	1-126-205-11	ELECT CHIP 47UF 20.00% 6.3V (NS730P/NS725P)	
C510	1-126-205-11	ELECT CHIP 47UF 20.00% 6.3V (NS730P/NS725P)	
C511	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V (NS730P/NS725P)	
C512	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V (NS730P/NS725P)	
C513	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V (NS730P/NS725P)	
C514	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V (NS730P/NS725P)	
C515	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V (NS730P/NS725P)	
C516	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V (NS730P/NS725P)	
C517	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V (NS730P/NS725P)	
C518	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V (NS730P/NS725P)	
C520	1-126-205-11	ELECT CHIP 47UF 20.00% 6.3V (NS730P/NS725P)	
C521	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V (NS730P/NS725P)	
C526	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V (NS730P/NS725P)	
C527	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V (NS730P/NS725P)	
C528	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V (NS730P/NS725P)	
C529	1-127-715-91	CERAMIC CHIP 0.22UF 10% 16V (NS730P/NS725P)	
C530	1-126-205-11	ELECT CHIP 47UF 20.00% 6.3V (NS730P/NS725P)	
C531	1-127-715-91	CERAMIC CHIP 0.22UF 10% 16V (NS730P/NS725P)	
C532	1-164-315-11	CERAMIC CHIP 470PF 5.00% 50V (NS730P/NS725P)	
C533	1-164-315-11	CERAMIC CHIP 470PF 5.00% 50V (NS730P/NS725P)	
C534	1-164-173-11	CERAMIC CHIP 0.0039UF 10.00% 50V (NS730P/NS725P)	
C537	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V (NS730P/NS725P)	
C538	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V (NS730P/NS725P)	
C539	1-164-733-11	CERAMIC CHIP 820PF 10.00% 50V (NS730P/NS725P)	
C540	1-127-715-91	CERAMIC CHIP 0.22UF 10% 16V (NS730P/NS725P)	
C541	1-126-205-11	ELECT CHIP 47UF 20.00% 6.3V (NS730P/NS725P)	
C542	1-127-715-91	CERAMIC CHIP 0.22UF 10% 16V (NS730P/NS725P)	
C543	1-162-964-11	CERAMIC CHIP 0.001UF 10.00% 50V (NS730P/NS725P)	
C544	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V (NS730P/NS725P)	
C545	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V (NS730P/NS725P)	
C546	1-107-826-11	CERAMIC CHIP 0.1UF 10.00% 16V (NS730P/NS725P)	
C601	1-162-964-11	CERAMIC CHIP 0.001UF 10.00% 50V	
C602	1-127-715-91	CERAMIC CHIP 0.22UF 10% 16V	
C603	1-124-779-00	ELECT CHIP 10UF 20.00% 16V	
C604	1-162-970-11	CERAMIC CHIP 0.01UF 10.00% 25V	
		<CONNECTOR>	
CN102	1-770-154-11	PIN, CONNECTOR (PC BOARD) 6P	
CN201	1-779-353-21	CONNECTOR, FFC/FPC 5P	
CN202	1-779-353-21	CONNECTOR, FFC/FPC 5P	
CN203	1-815-507-21	CONNECTOR, FFC/FPC 26P	
CN204	1-779-935-21	CONNECTOR, FFC/FPC 9P (Except: NS325:AR/NS730P:CN/NS430/NS433/NS333)	
CN601	1-816-369-21	CONNECTOR, BOARD TO BOARD 25P	
CN204	1-779-935-11	CONNECTOR, FFC/FPC 9P (NS325:AR/NS730P:CN/NS430/NS433/NS333)	
		<FERRITE BEAD>	
FB103	1-400-382-11	Except (NS325:AR) 0UH	
FB104	1-400-382-11	Except (NS325:AR) 0UH	
FB105	1-400-382-11	Except (NS325:AR) 0UH	
FB106	1-400-382-11	Except (NS325:AR) 0UH	
FB103	1-469-324-21	FERRITE (NS325:AR) 0UH	
FB104	1-469-324-21	FERRITE (NS325:AR) 0UH	
FB105	1-469-324-21	FERRITE (NS325:AR) 0UH	
FB106	1-469-324-21	FERRITE (NS325:AR) 0UH	
FB103	1-469-329-21	FERRITE 0UH	
FB104	1-469-329-21	FERRITE 0UH	
FB105	1-469-329-21	FERRITE (NS325:AR) 0UH	
FB106	1-469-329-21	FERRITE (NS325:AR) 0UH	
FB107	1-469-324-21	FERRITE (NS325:AR) 0UH	
FB108	1-469-324-21	FERRITE 0UH	
FB109	1-400-382-11	FERRITE 0UH	
FB111	1-400-382-11	FERRITE 0UH	

MB-108

Ref. No.	Part No.	Description			Remark
FB602	1-469-784-11	FERRITE	0UH		
FB603	1-469-784-11	FERRITE	0UH		
		<FILTER>			
FL101	1-234-177-21	FERRITE	0UH		
FL103	1-234-177-21	FERRITE	0UH		
FL104	1-234-177-21	FERRITE	0UH		
FL105	1-234-177-21	FERRITE	0UH		
FL109	1-233-893-21	FILTER, CHIP EMI			
FL110	1-234-177-21	FERRITE	0UH		
FL201	1-234-177-21	FERRITE	0UH		
FL402	1-234-177-21	FERRITE	0UH		
FL404	1-234-177-21	FERRITE	0UH		
		<IC>			
IC101	8-759-699-33	IC CAT24WC16J-TE13 (NS325:US,CND,PX,E,MX/			
		NS530:HK,SP,TW,KR,EA,ME2,ME5)			
IC103	6-701-877-01	IC SM8707EV-G-E2			
IC104	6-701-837-01	IC MB91307RPFV-G-BND-E1			
IC106	6-803-223-01	IC MX23L3213TC-90G-DPX1700V770 (NS325:US,CND,PX)			
IC107	6-803-054-01	IC MBM29DL324BE-90PFTN (NS730P:HK,SP,KR,ME2,AUS/			
		NS530/NS330/NS333/NS430/NS433)			
IC107	6-803-055-01	IC MR27V3202F-PTTPZ04B (NS325:E,AR,MX,BR)			
IC107	6-803-056-01	IC MR27V3202F-RBTPZ04B (NS725P)			
IC107	6-803-704-01	IC HR27V3202F-1G1TPZ04B (NS730P:ME2,AUS)			
IC108	6-701-874-01	IC IDT71V016SA15PH8(SCD2994)			
		(NS530/NS330/NS333/NS430/NS433/NS730P)			
IC201	6-703-445-01	IC SP3726A			
IC202	6-701-878-01	IC FAN8034L			
IC301	6-701-876-01	IC CXD9703R			
IC302	6-702-302-01	IC TK11133CSCL-G			
IC303	6-701-969-01	IC K4F151612D-UL60T			
IC401	6-702-300-01	IC TK11118CSCL-G			
IC402	6-702-302-01	IC TK11133CSCL-G (Except: NS730P/NS725P)			
IC403	8-752-416-45	IC CXD1935Q			
IC404	6-702-610-01	IC MSM56V16160F-10T47M1			
IC405	6-702-610-01	IC MSM56V16160F-10T47M1 (Except: NS325:E)			
IC501	8-759-588-58	IC MM1385NNLE (NS730P/NS725P)			
IC502	6-701-814-01	IC CXD9698R (NS730P/NS725P)			
IC503	6-700-353-01	IC MT48LC1M16A1TG-6STR (NS730P/NS725P)			
IC504	6-701-079-01	IC ADV7300AKST (NS730P/NS725P)			
IC505	8-759-588-58	IC MM1385NNLE (NS730P/NS725P)			
IC601	6-703-704-01	IC AK4381VT-E2 (NS730P/NS725P)			
		<COIL>			
L101	1-414-410-21	INDUCTOR	10UH		
L201	1-412-031-11	INDUCTOR	47UH		
L202	1-412-031-11	INDUCTOR	47UH		
		<TRANSISTOR>			
Q201	8-729-920-79	TRANSISTOR 2SB1132-T100-QR			
Q202	8-729-920-79	TRANSISTOR 2SB1132-T100-QR			
		<RESISTOR>			
R103	1-216-809-11	METAL CHIP	100	5%	1/10W
R104	1-216-809-11	METAL CHIP	100	5%	1/10W

Ref. No.	Part No.	Description			Remark
R105	1-216-809-11	METAL CHIP	100	5%	1/10W
R106	1-216-809-11	METAL CHIP	100	5%	1/10W
R108	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R110	1-216-821-11	METAL CHIP	1K	5%	1/10W
R111	1-216-809-11	METAL CHIP	100	5%	1/10W
R112	1-216-809-11	METAL CHIP	100	5%	1/10W
R113	1-216-837-11	METAL CHIP	22K	5%	1/10W
R114	1-216-864-11	SHORT CHIP	0		
		(NS325/NS530)			
R114	1-216-817-11	METAL CHIP	470	5%	1/10W
		(NS330/NS333/NS430/NS433/NS725P/NS730P)			
R116	1-216-801-11	METAL CHIP	22	5%	1/10W
R117	1-216-821-11	METAL CHIP	1K	5%	1/10W
R118	1-216-845-11	METAL CHIP	100K	5%	1/10W
R119	1-216-845-11	METAL CHIP	100K	5%	1/10W
R120	1-216-821-11	METAL CHIP	1K	5%	1/10W
R121	1-216-821-11	METAL CHIP	1K	5%	1/10W
R123	1-216-833-11	METAL CHIP	10K	5%	1/10W
R124	1-216-833-11	METAL CHIP	10K	5%	1/10W
R128	1-216-809-11	METAL CHIP	100	5%	1/10W
R129	1-216-809-11	METAL CHIP	100	5%	1/10W
R130	1-216-809-11	METAL CHIP	100	5%	1/10W
R131	1-216-809-11	METAL CHIP	100	5%	1/10W
R134	1-216-801-11	METAL CHIP	22	5%	1/10W
R136	1-216-801-11	METAL CHIP	22	5%	1/10W
R137	1-216-801-11	METAL CHIP	22	5%	1/10W
R139	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R141	1-216-833-11	METAL CHIP	10K	5%	1/10W
R150	1-216-833-11	METAL CHIP	10K	5%	1/10W
R156	1-216-833-11	METAL CHIP	10K	5%	1/10W
R157	1-216-864-11	SHORT CHIP	0		
R159	1-216-864-11	SHORT CHIP	0		
R160	1-216-864-11	SHORT CHIP	0		
R163	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R164	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
		(NS330:RUS)			
R164	1-216-075-00	RES-CHIP	12K	5%	1/10W
		(NS330:AEP,UK/NS333/NS430/NS433)			
R164	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
		(NS530:HK,SP,TW,KR/NS730P:HK,SP,KR)			
R164	1-216-047-91	RES-CHIP	820	5%	1/10W
		(NS530:EA,ME2/NS730P:ME2)			
R164	1-216-052-00	RES-CHIP	1.3K	5%	1/10W
		(NS530:ME5)			
R164	1-216-041-00	RES-CHIP	470	5%	1/10W
		(NS730P:AUS)			
R164	1-216-081-00	RES-CHIP	22K	5%	1/10W
		(NS325:E,AR)			
R164	1-216-033-00	RES-CHIP	220	5%	1/10W
		(NS325:MX)			
R164	1-216-061-91	RES-CHIP	3.3K	5%	1/10w
		(NS325:BR)			
R165	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R166	1-216-089-11	RES-CHIP	47K	5%	1/10W
		(NS333/NS430/NS433)			
R166	1-216-081-00	RES-CHIP	224	5%	1/10W
		(NS730P/NS725P)			
R168	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R169	1-216-089-11	RES-CHIP	47K	5%	1/10W
		(NS330:AEP,UK/NS333/NS430/NS433/NS530:EA,ME2)			
R169	1-216-075-00	RES-CHIP	12K	5%	1/10W
		(NS325:E,MX,BR,AR/NS730P:ME2,AUS/NS530:AUS)			
R169	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
		(NS330:RUS/NS530:ME5)			

Ref. No.	Part No.	Description			Remark
R169	1-216-081-00	RES-CHIP	22K	5%	1/10W
		(NS530:HK,SP,TW,KR/NS730P:HK,SP,KR)			
R169	1-216-089-11	RES-CHIP	47K	5%	1/10W
		(NS730P:ME2)			
R176	1-216-864-11	SHORT CHIP	0		
R177	1-216-833-11	METAL CHIP	10K	5%	1/10W
		(NS730P)			
R178	1-216-833-11	METAL CHIP	10K	5%	1/10W
		(NS730P)			
R180	1-216-809-11	METAL CHIP	100	5%	1/10W
R181	1-216-864-11	SHORT CHIP	0		
R182	1-216-809-11	METAL CHIP	100	5%	1/10W
R183	1-216-809-11	METAL CHIP	100	5%	1/10W
R184	1-216-833-11	METAL CHIP	10K	5%	1/10W
R185	1-216-821-11	METAL CHIP	1K	5%	1/10W
R187	1-216-864-11	SHORT CHIP	0		
R206	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R207	1-216-809-11	METAL CHIP	100	5%	1/10W
R210	1-216-815-11	METAL CHIP	330	5%	1/10W
R211	1-216-809-11	METAL CHIP	100	5%	1/10W
R212	1-216-809-11	METAL CHIP	100	5%	1/10W
R213	1-216-833-11	METAL CHIP	10K	5%	1/10W
R214	1-216-833-11	METAL CHIP	10K	5%	1/10W
R216	1-216-821-11	METAL CHIP	1K	5%	1/10W
R217	1-216-821-11	METAL CHIP	1K	5%	1/10W
R218	1-216-846-11	METAL CHIP	120K	5%	1/10W
R219	1-216-846-11	METAL CHIP	120K	5%	1/10
R220	1-216-847-11	METAL CHIP	150K	5%	1/10W
R221	1-216-847-11	METAL CHIP	150K	5%	1/10W
R222	1-216-842-11	METAL CHIP	56K	5%	1/10W
R223	1-216-842-11	METAL CHIP	56K	5%	1/10W
R224	1-216-850-11	METAL CHIP	270K	5%	1/10W
R225	1-216-833-11	METAL CHIP	10K	5%	1/10W
R226	1-216-853-11	METAL CHIP	470K	5%	1/10W
R227	1-216-846-11	METAL CHIP	120K	5%	1/10W
R229	1-216-833-11	METAL CHIP	10K	5%	1/10W
R230	1-216-839-11	METAL CHIP	33K	5%	1/10W
R231	1-216-855-11	METAL CHIP	680K	5%	1/10W
R232	1-216-839-11	METAL CHIP	33K	5%	1/10W
R233	1-216-853-11	METAL CHIP	470K	5%	1/10W
R234	1-211-981-11	METAL CHIP	33	0.5%	1/10W
		(Except: NS325:AR)			
R234	1-216-803-11	METAL CHIP	33	5%	1/10W
		(NS325:AR)			
R235	1-216-809-11	METAL CHIP	100	5%	1/10W
R236	1-211-981-11	METAL CHIP	33	0.5%	1/10W
		(Except: NS325:AR)			
R236	1-216-803-11	METAL CHIP	33	5%	1/10W
		(NS325:AR)			
R238	1-216-839-11	METAL CHIP	33K	5%	1/10W
R239	1-216-839-11	METAL CHIP	33K	5%	1/10W
R240	1-216-839-11	METAL CHIP	33K	5%	1/10W
R241	1-216-839-11	METAL CHIP	33K	5%	1/10W
R242	1-216-849-11	METAL CHIP	220K	5%	1/10W
R243	1-216-853-11	METAL CHIP	470K	5%	1/10W
R244	1-216-821-11	METAL CHIP	1K	5%	1/10W
R245	1-216-841-11	METAL CHIP	47K	5%	1/10W
R246	1-216-809-11	METAL CHIP	100	5%	1/10W
R248	1-216-803-11	METAL CHIP	33	5%	1/10W
R249	1-216-803-11	METAL CHIP	33	5%	1/10W
R250	1-218-895-11	METAL CHIP	100K	0.5%	1/10W

Ref. No.	Part No.	Description			Remark
R251	1-216-841-11	METAL CHIP	47K	5%	1/10W
R252	1-216-839-11	METAL CHIP	33K	5%	1/10W
R253	1-218-889-11	METAL CHIP	56K	0.5%	1/10W
R254	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R255	1-218-889-11	METAL CHIP	56K	0.5%	1/10W
R256	1-216-809-11	METAL CHIP	100	5%	1/10W
R259	1-216-833-11	METAL CHIP	10K	5%	1/10W
R260	1-216-834-11	METAL CHIP	12K	5%	1/10W
R261	1-216-833-11	METAL CHIP	10K	5%	1/10W
R262	1-216-815-11	METAL CHIP	330	5%	1/10W
R263	1-216-861-11	METAL CHIP	2.2M	5%	1/10W
R264	1-216-845-11	METAL CHIP	100K	5%	1/10W
R265	1-216-838-11	METAL CHIP	27K	5%	1/10W
R269	1-216-833-11	METAL CHIP	10K	5%	1/10W
R273	1-216-864-11	SHORT CHIP	0		
R281	1-216-864-11	SHORT CHIP	0		
R282	1-216-864-11	SHORT CHIP	0		
R284	1-216-833-11	METAL CHIP	10K	5%	1/10W
		(Except: NS325:AR)			
R301	1-216-295-91	SHORT CHIP	0		
R302	1-216-295-91	SHORT CHIP	0		
R303	1-216-821-11	METAL CHIP	1K	5%	1/10W
R311	1-216-809-11	METAL CHIP	100	5%	1/10W
R312	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R313	1-216-817-11	METAL CHIP	470	5%	1/10W
R314	1-216-817-11	METAL CHIP	470	5%	1/10W
R315	1-216-817-11	METAL CHIP	470	5%	1/10W
R316	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R317	1-216-833-11	METAL CHIP	10K	5%	1/10W
R318	1-216-817-11	METAL CHIP	470	5%	1/10W
R319	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R320	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R321	1-218-879-11	METAL CHIP	22K	0.5%	1/10W
R322	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R323	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R324	1-216-833-11	METAL CHIP	10K	5%	1/10W
R325	1-216-831-11	METAL CHIP	6.8K	5%	1/10W
R326	1-216-833-11	METAL CHIP	10K	5%	1/10W
R327	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R328	1-216-838-11	METAL CHIP	27K	5%	1/10W
R329	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R330	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R331	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R332	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R333	1-216-847-11	METAL CHIP	150K	5%	1/10W
R334	1-218-853-11	METAL CHIP	1.8K	0.5%	1/10W
R335	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R336	1-216-833-11	METAL CHIP	10K	5%	1/10W
R349	1-216-833-11	METAL CHIP	10K	5%	1/10W
R351	1-216-295-91	SHORT CHIP	0		
R352	1-216-295-91	SHORT CHIP	0		
R358	1-216-833-11	METAL CHIP	10K	5%	1/10W
R359	1-216-833-11	METAL CHIP	10K	5%	1/10W
R360	1-216-809-11	METAL CHIP	100	5%	1/10W
R401	1-216-295-91	SHORT CHIP	0		
		(Except: NS725P/NS730P)			
R402	1-216-295-91	SHORT CHIP	0		
R403	1-216-817-11	METAL CHIP	470	5%	1/10W
R405	1-216-809-11	METAL CHIP	100	5%	1/10W

MB-108 **SW-384**

Ref. No.	Part No.	Description			Remark
R406	1-218-831-11	METAL CHIP	220	0.5%	1/10W
		(Except: NS725P/NS730P)			
R407	1-218-831-11	METAL CHIP	220	0.5%	1/10W
		(Except: NS725P/NS730P)			
R408	1-218-831-11	METAL CHIP	220	0.5%	1/10W
		(Except: NS725P/NS730P)			
R409	1-218-831-11	METAL CHIP	220	0.5%	1/10W
		(Except: NS725P/NS730P)			
R410	1-218-831-11	METAL CHIP	220	0.5%	1/10W
		(Except: NS725P/NS730P)			
R411	1-218-831-11	METAL CHIP	220	0.5%	1/10W
		(Except: NS725P/NS730P)			
R412	1-216-833-11	METAL CHIP	10K	5%	1/10W
R413	1-216-831-11	METAL CHIP	6.8K	5%	1/10W
R414	1-216-822-11	METAL CHIP	1.2K	5%	1/10W
R423	1-216-833-11	METAL CHIP	10K	5%	1/10W
R426	1-216-833-11	METAL CHIP	10K	5%	1/10W
R430	1-216-797-11	METAL CHIP	10	5%	1/10W
R439	1-216-864-11	SHORT CHIP	0		
R507	1-216-809-11	METAL CHIP	100	5%	1/10W
R511	1-216-809-11	METAL CHIP	100	5%	1/10W
R436	1-216-864-11	SHORT CHIP	0		
R512	1-216-864-11	SHORT CHIP	0		
		(NS725P/NS730P)			
R513	1-218-285-11	METAL CHIP	75	5%	1/10W
		(NS725P/NS730P)			
R514	1-218-292-11	METAL CHIP	20K	5%	1/10W
		(NS725P/NS730P)			
R536	1-216-809-11	METAL CHIP	100	5%	1/10W
		(NS725P/NS730P)			
R558	1-216-809-11	METAL CHIP	100	5%	1/10W
		(NS725P/NS730P)			
R438	1-216-864-11	SHORT CHIP	0		
		(NS725P/NS730P)			
R559	1-216-809-11	METAL CHIP	100	5%	1/10W
		(NS725P/NS730P)			
R568	1-216-819-11	METAL CHIP 680 5% 1/10W			
		(Except: NS725P/NS730P)			
R570	1-216-822-11	METAL CHIP 1.2K 5% 1/10W			
		(Except: NS725P/NS730P)			
R571	1-216-822-11	METAL CHIP 1.2K 5% 1/10W			
		(Except: NS725P/NS730P)			
R573	1-216-809-11	METAL CHIP 100 5% 1/10W			
		(Except: NS725P/NS730P)			
R574	1-218-834-11	METAL CHIP 300 0.5% 1/10W			
		(Except: NS725P/NS730P)			
R575	1-218-834-11	METAL CHIP 300 0.5% 1/10W			
		(Except: NS725P/NS730P)			
R576	1-218-834-11	METAL CHIP 300 0.5% 1/10W			
		(Except: NS725P/NS730P)			
R577	1-218-834-11	METAL CHIP 300 0.5% 1/10W			
		(Except: NS725P/NS730P)			
R578	1-218-834-11	METAL CHIP 300 0.5% 1/10W			
		(Except: NS725P/NS730P)			
R579	1-218-834-11	METAL CHIP 300 0.5% 1/10W			
		(Except: NS725P/NS730P)			
R585	1-216-833-11	METAL CHIP 10K 5% 1/10W			
		(Except: NS725P/NS730P)			
R601	1-216-809-11	METAL CHIP 100 5% 1/10W			
R613	1-216-864-11	SHORT CHIP 0			
		(Except: NS725P/NS730P)			
R614	1-216-864-11	SHORT CHIP 0			
		(Except: NS725P/NS730P)			
R607	1-216-864-11	SHORT CHIP	0		
		(Except: NS725P/NS730P)			

Ref. No.	Part No.	Description				Remark
R608	1-216-864-11	SHORT CHIP	0			
		(Except: NS725P/NS730P)				
R609	1-216-864-11	SHORT CHIP	0			
		(Except: NS725P/NS730P)				
R612	1-216-864-11	SHORT CHIP	0			
		(Except: NS725P/NS730P)				
		<COMPOSITION CIRCUIT BLOCK>				
RB102	1-233-270-11	NETWORK, RES (8 GANG) 10K				
		<VARIABLE RESISTOR>				
RV401	1-223-583-41	RES, ADJ, CARBON (3 TYPE) 1K				
		(Except: NS725P/NS730P)				
RV501	1-223-583-41	RES, ADJ, CARBON (3 TYPE) 1K				
		(Except: NS725P/NS730P)				
RV502	1-223-583-41	RES, ADJ, CARBON (3 TYPE) 1K				
		(Except: NS725P/NS730P)				
		<COMPOSITION CIRCUIT BLOCK>				
RB102	1-233-270-11	NETWORK, RES (8 GANG) 10K				
		<VIBRATOR>				
X101	1-795-174-11	VIBRATOR, CERAMIC				
X102	1-795-630-11	VIBRATOR, CRYSTAL (NS325/NS530)				

Ref. No.	Part No.	Description				Remark
*	A-6061-358-A	SW-384 BOARD COMPLETE				
		(NS325:US,CND,PX,E,MX/NS530)				
		*************************************				
*	A-6061-937-A	SW-384 BOARD COMPLETE				
		(NS325:BR,AR)				
		*************************************				
*	A-6061-513-A	SW-384 BOARD COMPLETE				
		(NS330/NS333)				
		*************************************				
*	A-6061-546-A	SW-384 BOARD COMPLETE				
		(NS430/NS433)				
		*************************************				
*	A-6061-689-A	SW-384 BOARD COMPLETE				
		(NS725P/NS730P: HK,KR,SP,ME2,AUS)				
		*************************************				
		<CAPACITOR>				
C820	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V	
		<CONNECTOR>				
CN801	1-815-569-11	CONNECTOR, FFC/FPC 7P				
		<IC>				
IC820	6-703-744-01	IC GP1UE26SXKOF				
		<JUMPER RESISTOR>				
JR801	1-216-295-91	SHORT CHIP	0			
JR802	1-216-295-91	SHORT CHIP	0			

Ref. No.	Part No.	Description	Remark
JR803	1-216-295-91	SHORT CHIP 0	
JR801	1-216-295-91	SHORT CHIP 0	
JR812	1-216-295-91	SHORT CHIP 0	
		<RESISTOR>	
R802	1-216-059-00	RES-CHIP 2.7K 5%	1/10W
R803	1-216-063-91	RES-CHIP 3.9K 5%	1/10W
R804	1-216-071-00	RES-CHIP 8.2K 5%	1/10W
R805	1-216-081-00	RES-CHIP 22K 5%	1/10W
R807	1-216-059-00	RES-CHIP 2.7K 5%	1/10W
R820	1-216-017-91	RES-CHIP 47 5%	1/10W
R821	1-216-097-11	RES-CHIP 100K 5%	1/10W
R812	1-216-063-91	RES-CHIP 3.9K 5% (NS725P/NS730P)	1/10W
		<SWITCH>	
S801	1-762-196-21	SWITCH, TACT (NS325/NS530/NS330/NS333)	
S802	1-762-196-21	SWITCH, TACT (NS325/NS530/NS330/NS333)	
S803	1-762-196-21	SWITCH, TACT	
S805	1-762-196-21	SWITCH, TACT (NS325/NS530/NS330/NS333)	
S807	1-762-196-21	SWITCH, TACT	
S814	1-762-196-21	SWITCH, TACT (NS725P/NS730P/NS430/NS433)	
S815	1-762-196-21	SWITCH, TACT (NS725P/NS730P/NS430/NS433)	
S808	1-762-196-21	SWITCH, TACT	
S809	1-762-196-21	SWITCH, TACT	
S816	1-762-196-21	SWITCH, TACT	
S811	1-762-196-21	SWITCH, TACT (NS725P/NS730P)	
S812	1-762-196-21	SWITCH, TACT (NS725P/NS730P/NS430/NS433)	

Ref. No.	Part No.	Description	Remark
⚠	1-468-742-12	POWER BLOCK (HS8S2U) (NS325:US,CND,MX/NS725P:US,CND) *********************************	
		<FUSE>	
⚠F101	1-533-296-11	FUSE 125V/2A	
		<IC LINK>	
⚠P311	9-885-024-66	PROTECTOR 125V/1A	
⚠P611	9-885-024-67	PROTECTOR 125V/1.5A	

Ref. No.	Part No.	Description	Remark
⚠	1-468-744-11	POWER BLOCK (ETXNY410E0F) (NS330/NS333/NS430/NS433) **********************	
		<FUSE>	
⚠F101	9-885-020-46	CATRIDGE FUSE 250V/2A	
⚠F201	9-885-020-85	CATRIDGE FUSE 250V/1.6A	
⚠F301	9-885-020-85	CATRIDGE FUSE 250V/1.6A	

Ref. No.	Part No.	Description	Remark
⚠	1-468-743-11	POWER BLOCK (ETXNY410M0F) (NS325:PX,E,BR,AR/NS530/NS725P:PX/NS730P) *********************************	
		<FUSE>	
⚠F101	9-885-020-87	CATRIDGE FUSE 250V/2A	
⚠F201	9-885-020-85	CATRIDGE FUSE 250V/1.6A	
⚠F101	9-885-020-85	CATRIDGE FUSE 250V/1.6A	

Ref. No.	Part No.	Description	Remark
		ACCESSORIES *************	
	1-477-722-11	REMOTE COMMANDER (RMT-D156P) (NS330) BLACK	
	1-477-722-21	REMOTE COMMANDER (RMT-D157P) (NS330/NS333/NS430/NS433) SILVER	
	1-477-723-11	REMOTE COMMANDER (RMT-D152A) (NS325)	
	1-477-723-31	REMOYE COMMANDER (RMT-D152E) (NS530/NS730P)	
	1-477-724-11	REMOTE COMMANDER (RMT-D153A) (NS725P)	
	1-751-271-11	CORD, CONNECTION (NS325:US,CND,PX,E,HK/NS330:UK/ NS430:UK/NS530/NS725P/NS730P)	
	1-569-008-22	ADAPTOR, CONVERSION 2P (NS325:PX,E/NS530:TW,EA/NS725P:PX)	
	3-080-581-12	MANUAL, INSTRUCTION (FRENCH) (NS330:AE1/NS333:AE1/NS430:AE1/NS433:AE1)	
	3-080-581-22	MANUAL, INSTRUCTION (GERMAN) (NS330:AE1/NS333:AE1/NS430:AE1/NS433:AE1)	
	3-080-581-32	MANUAL, INSTRUCTION (ITALIAN) (NS330:AE1/NS333:AE1/NS430:AE1/NS433:AE1)	
	3-080-581-42	MANUAL, INSTRUCTION (DUTCH) (NS330:AE1/NS333:AE1/NS430:AE1/NS433:AE1)	
	3-080-581-52	MANUAL, INSTRUCTION (SPANISH) (NS330:AE2/NS333:AE2/NS430:AE2/NS433:AE2)	
	3-080-581-62	MANUAL, INSTRUCTION (PORTUGIS) (NS330:AE2/NS430:AE2)	
	3-080-581-72	MANUAL, INSTRUCTION (DANNISH) (NS330:AE2/NS333:AE2/NS430:AE2/NS433:AE2)	
	3-080-581-82	MANUAL, INSTRUCTION (FINNISH) (NS330:AE2/NS333:AE2/NS430:AE2/NS433:AE2)	
	3-080-581-92	MANUAL, INSTRUCTION (SWEDISH) (NS330:AE2/NS333:AE2/NS430:AE2/NS433:AE2)	
	3-080-590-12	MANUAL, INSTRUCTION (ENGLISH) (NS325:US,CND,PX)	
	3-080-590-22	MANUAL, INSTRUCTION (FRENCH) (NS325:CND)	
	3-080-590-32	MANUAL, INSTRUCTION (SPANISH) (NS325:E,MX)	
	3-080-591-12	MANUAL, INSTRUCTION (ENGLISH) (NS725P)	
	3-080-591-22	MANUAL, INSTRUCTION (FRENCH) (NS725P:CND)	
	3-080-594-11	MANUAL, INSTRUCTION (ENGLISH) (NS530:HK,SP,TW,EA,ME,AUS/ NS730P:HK,SP,ME2,AUS)	
	3-080-594-21	MANUAL, INSTRUCTION (FRENCH) (NS530:ME5)	
	3-080-594-31	MANUAL, INSTRUCTION (CHINA TRADITIONAL) (NS530:HK/NS730P:HK)	
	3-080-594-42	MANUAL, INSTRUCTION (CHINA TRADITIONAL) (NS530:TW)	

Ref. No.	Part No.	Description	Remark
	3-080-594-51	MANUAL, INSTRUCTION (HANGLE) (NS530:KR/NS730P:KR)	
	3-080-594-61	MANUAL, INSTRUCTION (ARABIC) (NS530:EA,ME2/NS730P:ME2)	
	3-080-594-71	MANUAL, INSTRUCTION (PERSIAN) (NS530:ME2/NS730P:ME2)	
	3-080-598-12	MANUAL, INSTRUCTION (ENGLISH) (NS330:UK/NS430:UK)	
	3-080-598-22	MANUAL, INSTRUCTION (RUSSIAN) (NS330:RUS)	
	3-083-556-11	MANUAL, INSTRUCTION (NS325:BR)	
	3-083-557-11	MANUAL, INSTRUCTION (NS325:AR)	
	1-770-019-51	ADAPTOR, CONVERSION PLUG (NS730P:HK/NS330:UK/NS530:HK/NS430:UK)	

Ref. No.	Part No.	Description	Remark

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